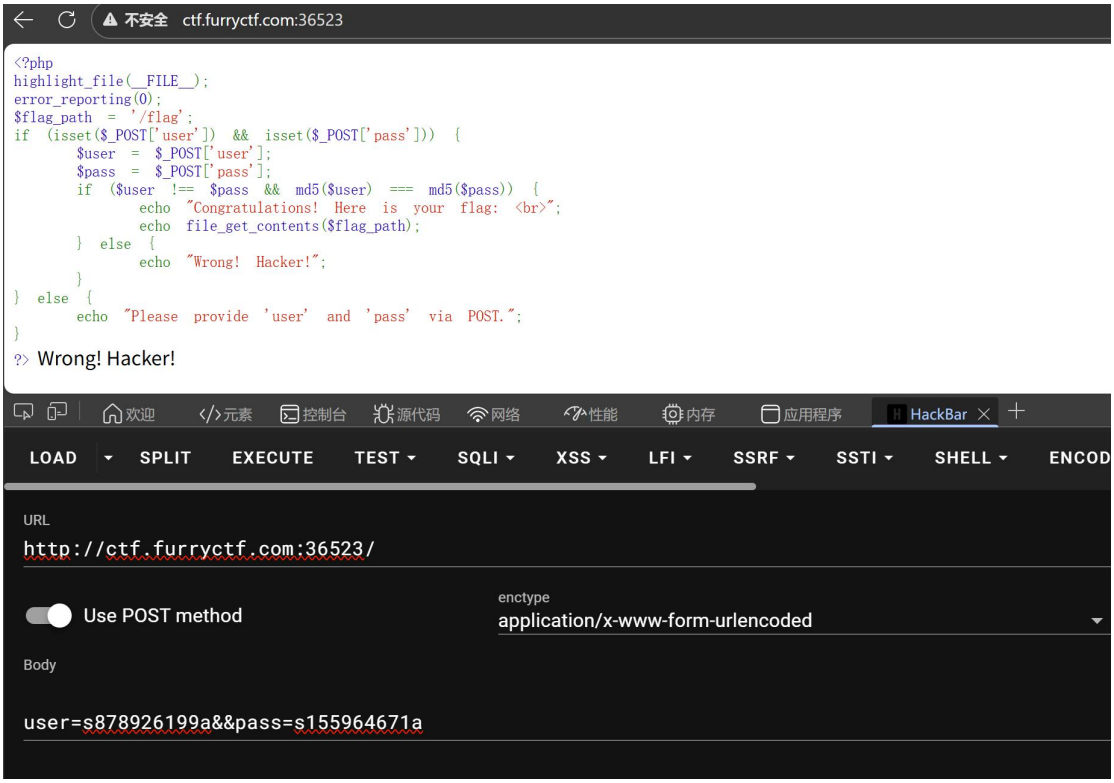
Web：ezmd5

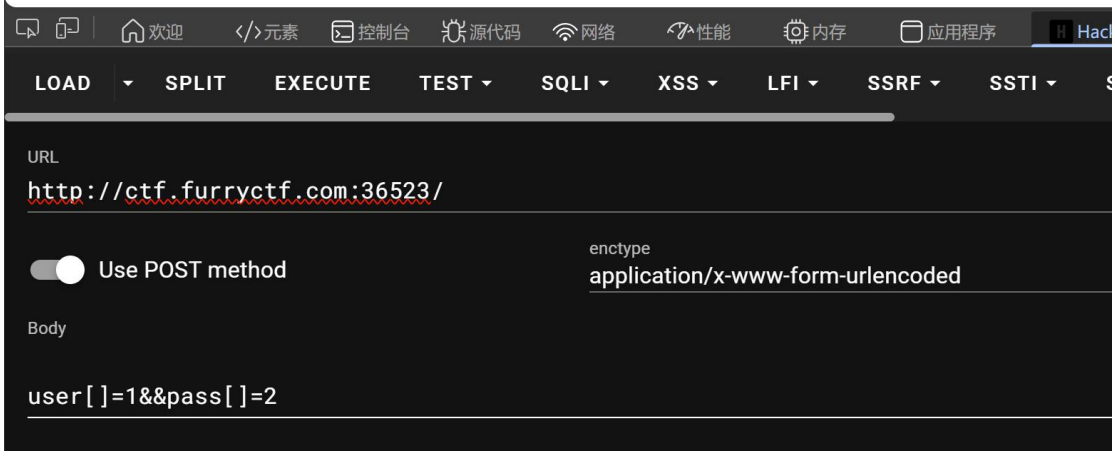
打开实例，是一个 md5 强比较



一开始以为是弱比较，所以用了常见的哈希碰撞，但是错了

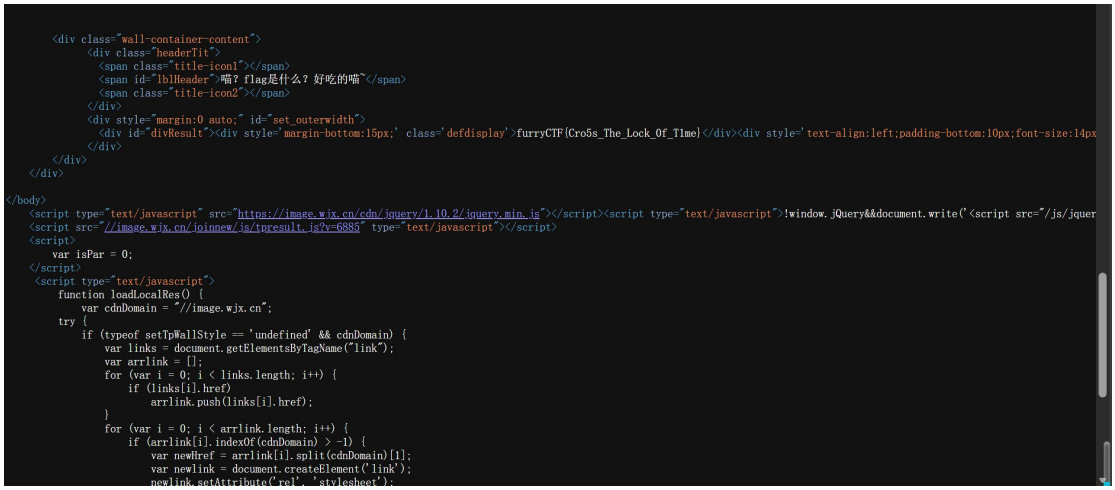
再仔细看才发现是强比较，所以尝试数组绕过

```php
<?php
highlight_file(__FILE__);
error_reporting(0);
$flag_path = '/flag';
if (isset($_POST['user']) && isset($_POST['pass'])) {
        $user = $_POST['user'];
        $pass = $_POST['pass'];
        if ($user !== $pass && md5($user) === md5($pass)) {
                echo "Congratulations! Here is your flag: <br>";
                echo file_get_contents($flag_path);
        } else {
                echo "Wrong! Hacker!";
        }
} else {
        echo "Please provide 'user' and 'pass' via POST.";
}
?> Congratulations! Here is your flag:
POFP{1ac0dc3f-7a12-46b0-943c-5d1649484598}
```



Misc 签到题：

既然题目说了是在投票页后面，那就查看源码

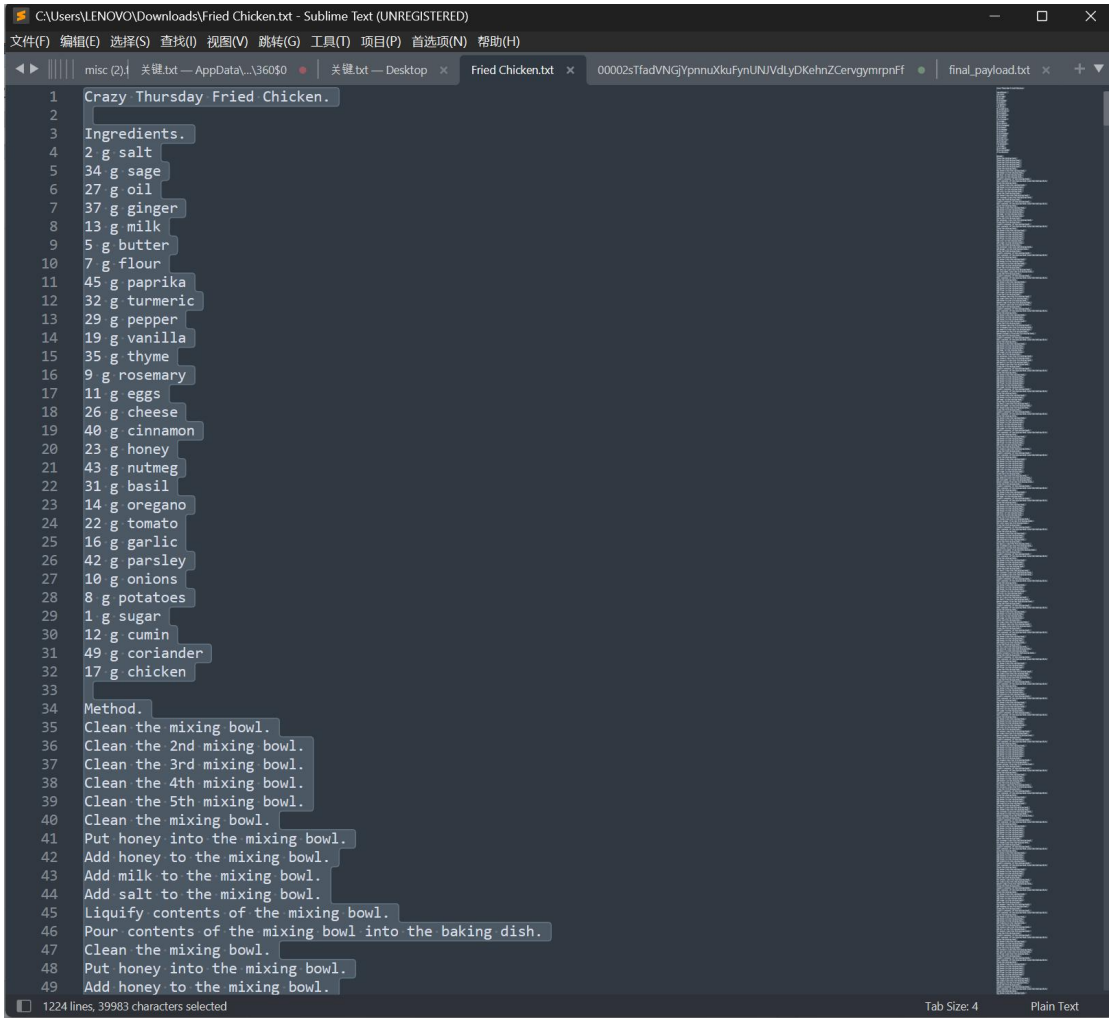

<div class="wall-container-content">
<div class="headerTit">

喵？flag是什么？好吃的喵~

</div>
<div style="margin:0 auto;" id="set_outerwidth">
<div id="divResult"><div style='margin-bottom:15px;' class='defdisplay'>furryCTF{Cro5s_The_Lock_Of_Time}</div><div style='text-align:left;padding-bottom:10px;font-size:14px
</div>
</div>
</div>
</body>
<script type="text/javascript" src="https://image.wjx.cn/cdn/jquery/1.10.2/jquery.min.js"></script><script type="text/javascript">!window.jQuery&&document.write('<script src="/js/jquer
<script src="//image.wjx.cn/joinnew/js/tpresult.js?v=6885" type="text/javascript"></script>
<script>
var isPar = 0;
</script>
<script type="text/javascript">
function loadLocalRes() {
var cdnDomain = "//image.wjx.cn";
try {
if (typeof setTpWallStyle == 'undefined' && cdnDomain) {
var links = document.getElementsByTagName("link");
var arrlink = [];
for (var i = 0; i < links.length; i++) {
if (links[i].href)
arrlink.push(links[i].href);
}
for (var i = 0; i < arrlink.length; i++) {
if (arrlink[i].indexOf(cdnDomain) > -1) {
var newHref = arrlink[i].split(cdnDomain)[1];
var newlink = document.createElement('link');
newlink.setAttribute('rel', 'stylesheet');

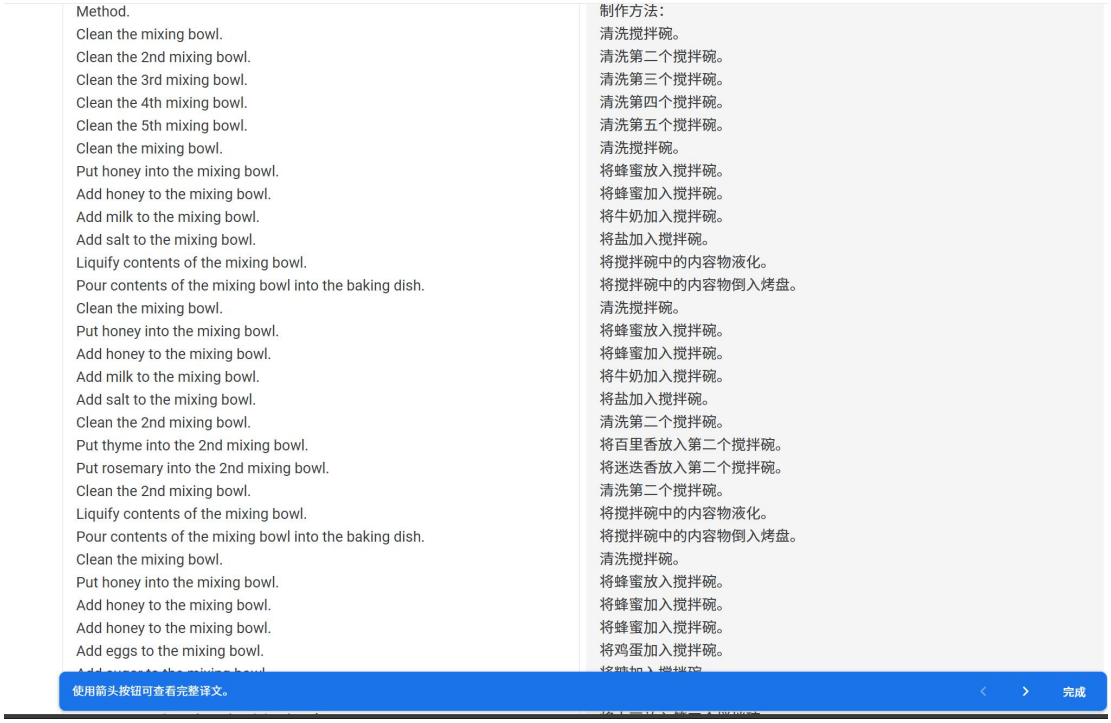
即可找到

Misc CyberChef



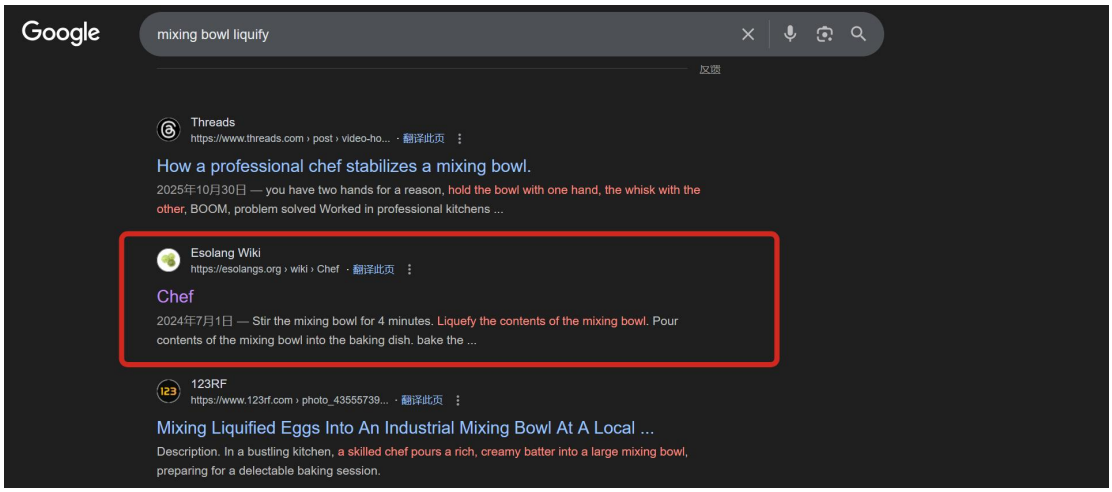
拿到文本，排除文本水印隐写，零宽字符隐写等文本隐写术，从文本内容中找线索

有点晕英文，丢进谷歌翻译

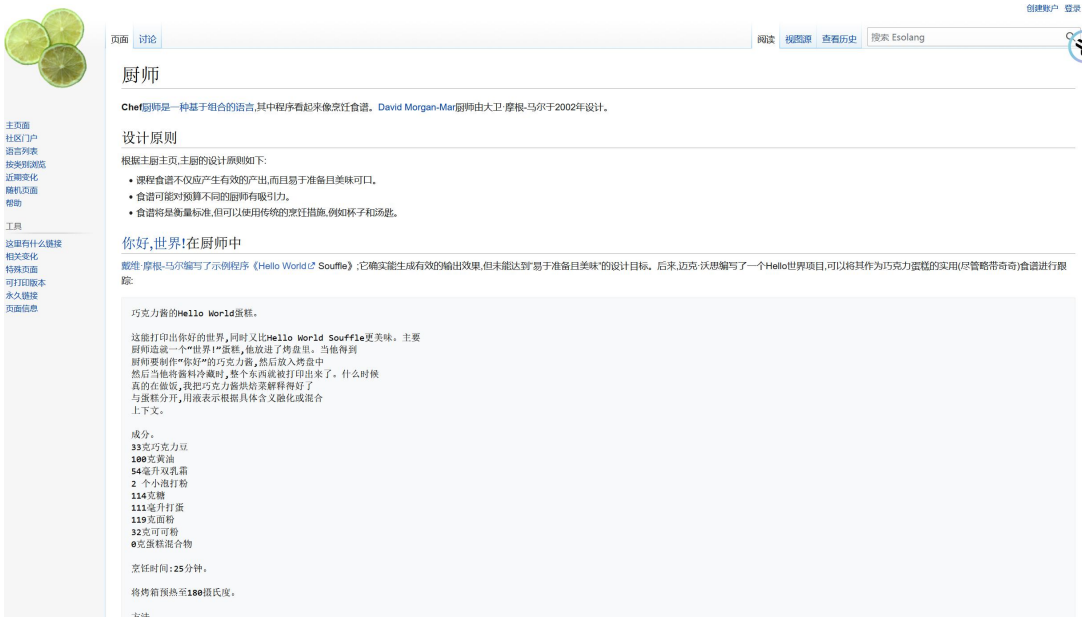


看了翻译过的菜谱，第一反应是，这不像是人类真的会写的菜谱，正常人谁做饭做几步就频繁清洗搅拌碗，往搅拌碗里加了东西又立马清洗了。

仔细观察文本会发现，每一步都出现 mixing bowl，总是出现结构相同的句式，反复出现的几个动词 put, add, clean, liquify, pour



在浏览器搜索关键词组合，发现 Chef，和题目 CyberChef 相关联



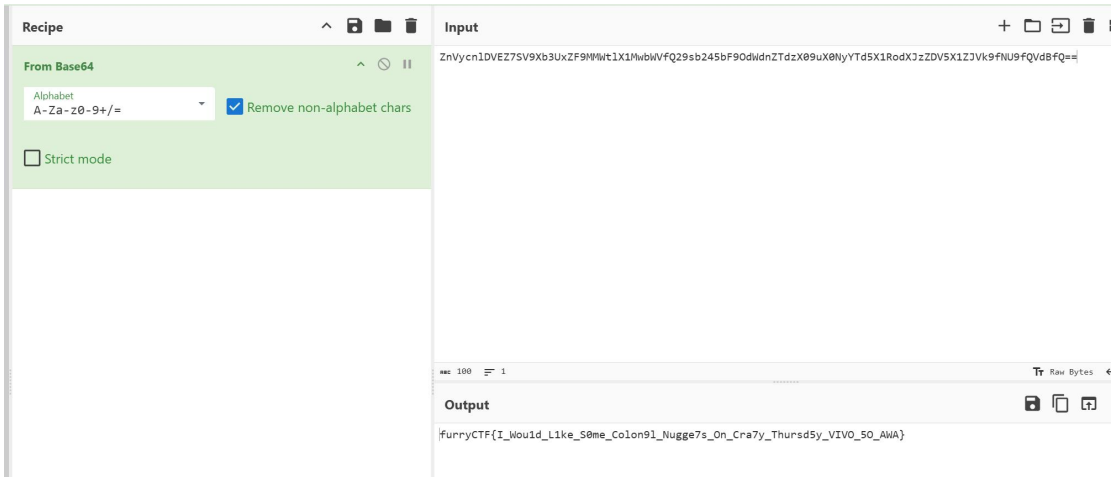
可以确认就是文本内容就是 Chef 语言

了解了下，ingredients 相当于数值表，put，add 在加减，pour 在输出，只需关注主碗，只有它会 liquify 和 pour

叫 ai 写个脚本将计算出的 askii 还原成字符串

```
PS C:\Users\LENOVO> cd Desktop
PS C:\Users\LENOVO\Desktop> python solve.py
==QfBdVQf9UNf9kVJZ1X5VDZzJXdoR1X5dTYyN0Xu90XzdTZndWdO9Fb542bs92QfVWbwM1XltWMM9FZxU3bX9VS7ZEVDlncyVnZ
```

猜测是反转的 base64

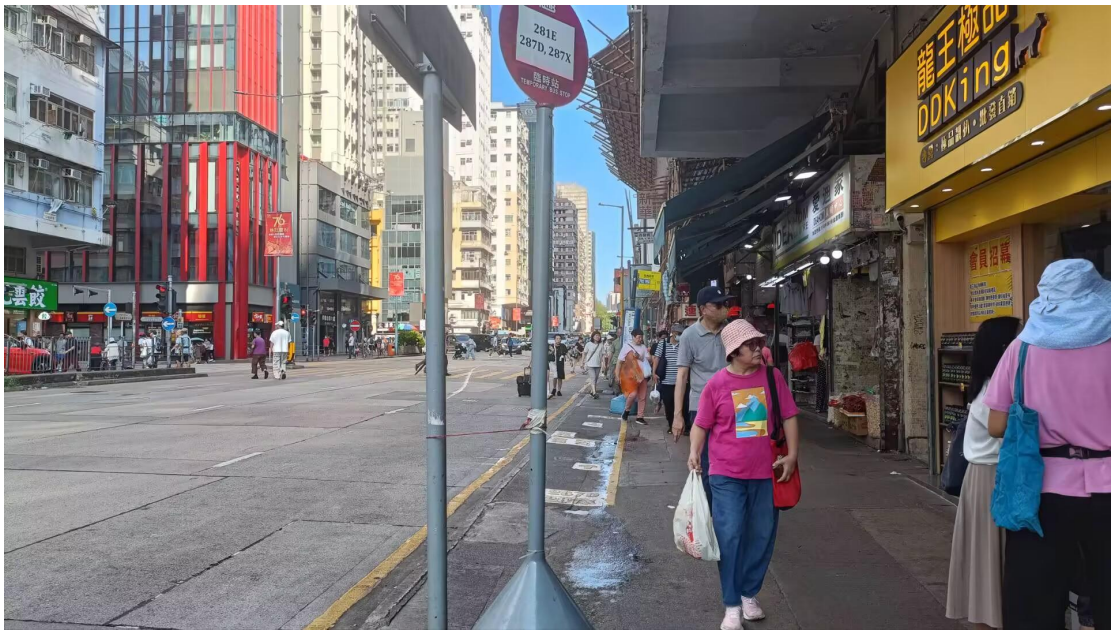


尝试，得到 furryCTF{I_Wou1d_L1ke_S0me_Colon9l_Nugge7s_On_Cra7y_Thursd5y_VIVO_5O_AWA}

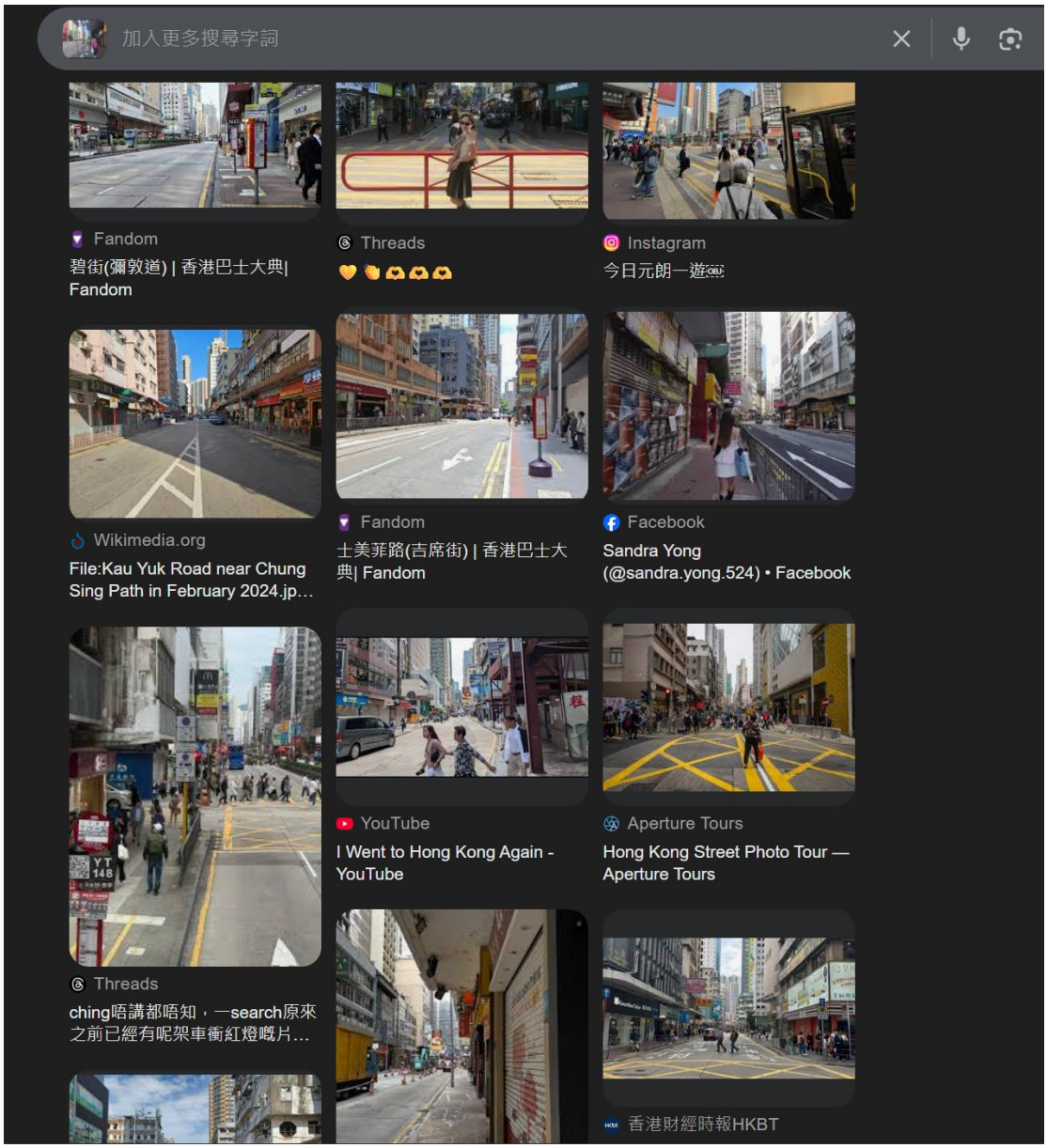
MISC 赛后问卷

送分，填问卷得 flag

OSINT 独游



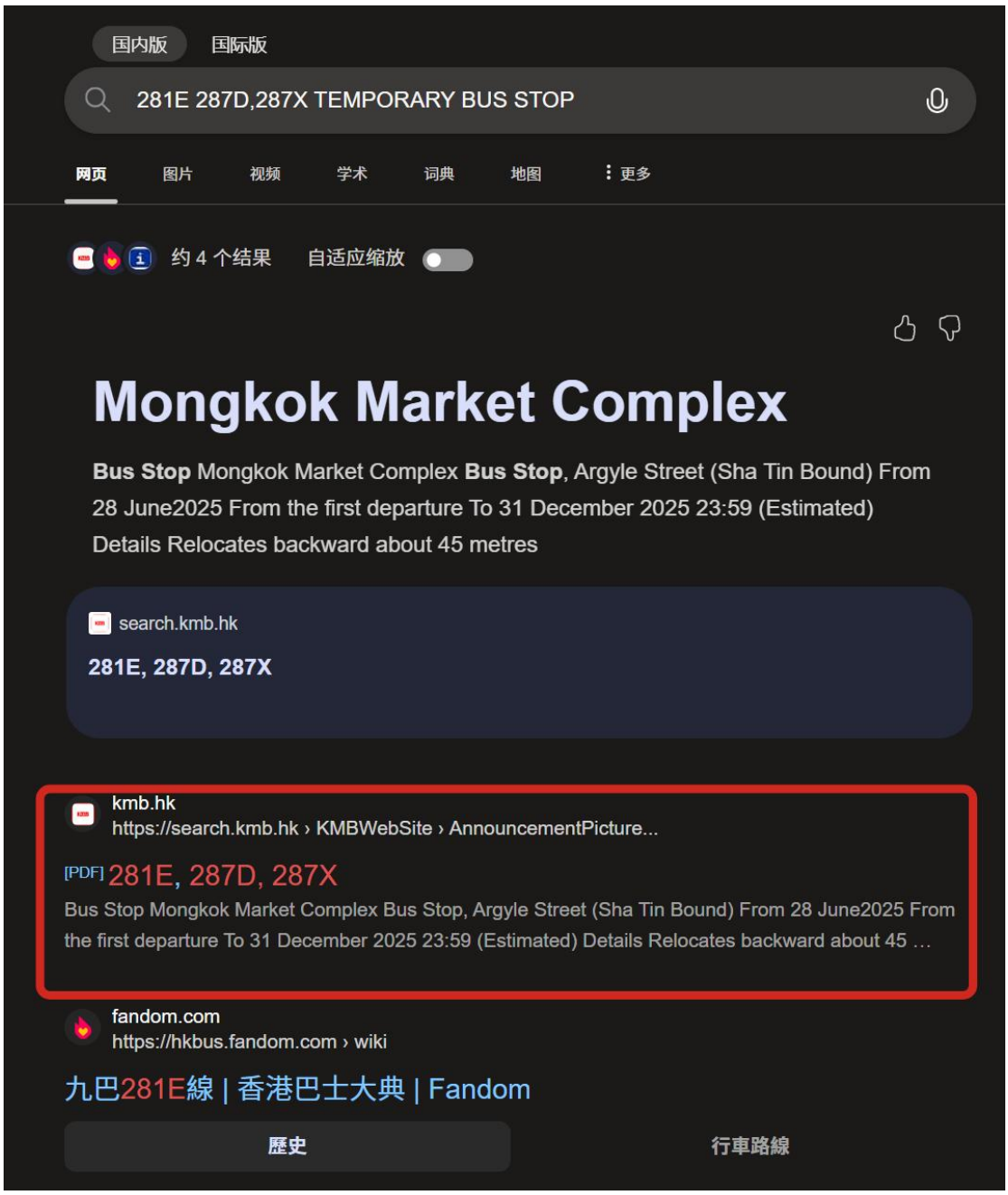
这题挺简单的说实话，首先打开图片，看到最近的商铺店名是繁体字，锁定港澳台三地，直觉告诉我是香港，谷歌识图一下



香港没跑了，图上明显文字线索

下面三个繁体字，前两个看不懂，但没关系，下面的英语很清楚 TEMPORARY BUS STOP

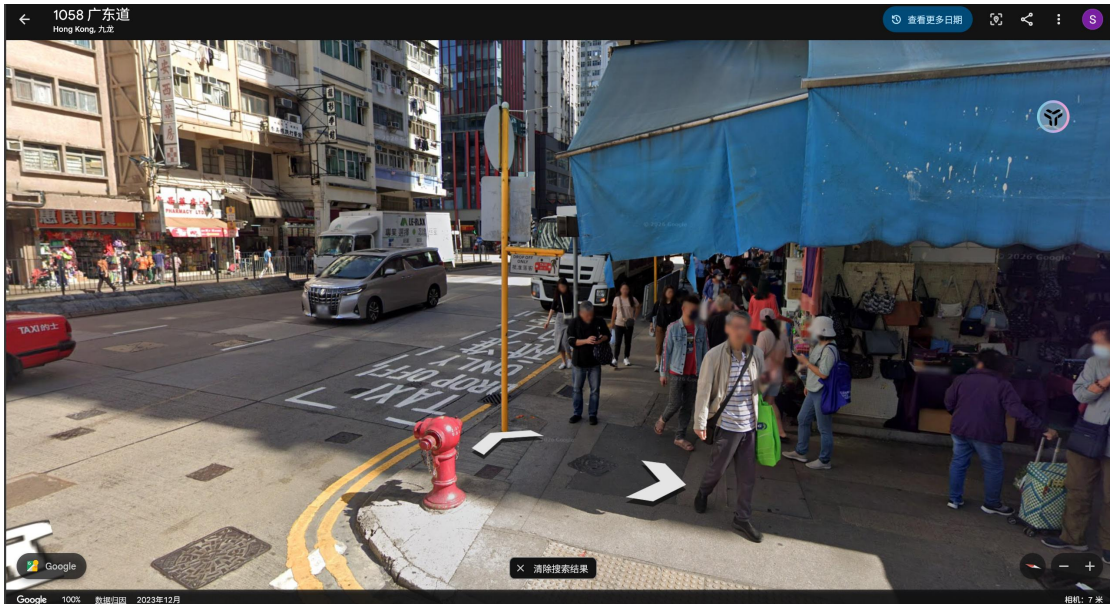
浏览器搜索 281E 287D,287X TEMPORARY BUS STOP



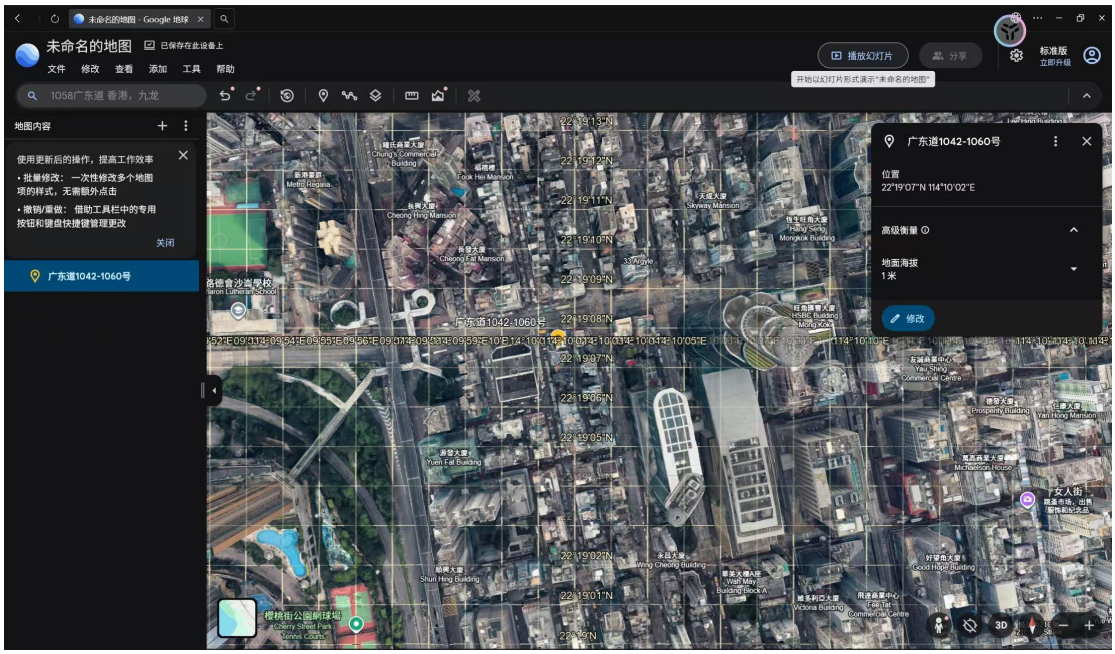
亞皆老街，旺角街市巴士站（往沙田方向）

在谷歌地球看街景

基本在这一块范围内了，在往前看看



基本是在这个位置，1058 广东道 看看经纬度



22° 19'07"N 114° 10'02"E

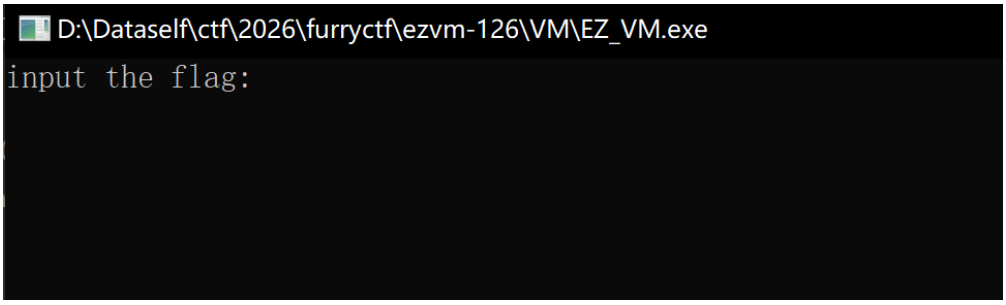
furryctf-wp

REVERSE

ezvm

1，主函数结构分析

1.试运行附件程序，flag验证



2.Ida反编译，f5生成伪代码，分析main函数的结构

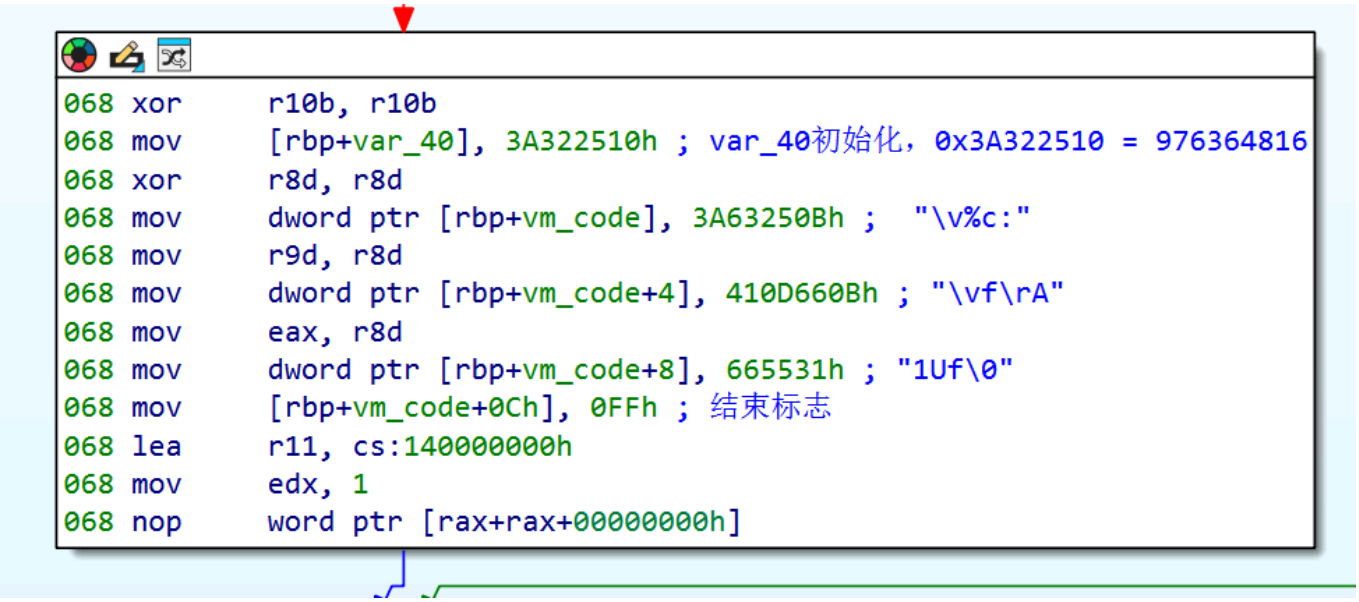
```
  s1_1 = (char *)operator new(0x11u);
  flag_init = "POFP{327a6c4304}";
  s1 = s1_1;
  do
  {
    v6 = *flag_init;
    flag_init[s1_1 - "POFP{327a6c4304}"] = *flag_init;
    ++flag_init;
  }
  while ( v6 );
  v7 = 0;
  n976364816 = 976364816;
  v8 = 0;
  strcpy(vm_code, "\v%c:\vf\rA1Uf");
  v9 = 0;
  v10 = 0;
  vm_code[12] = -1;
  v11 = 1;
  while ( 1 )
  {
    switch ( v10 )
    {
      case 0:
        v9 = s1[v8];
        if ( s1[v8] )
          goto LABEL_13;
        goto LABEL_14;
        v10 = (unsigned __int8)_v%c:_vf_rA1Uf[v13 - 4];
        break;
      default:
LABEL_14:
        sub_140001510(std::cout, "input the flag: ");
        sub_140001730(std::cin, v16, s2);
        v17 = strcmp(s1, s2) == 0;
        right_flag_ = "right flag!";
        if ( !v17 )
          right_flag_ = "wrong flag!";
        v19 = sub_140001510(std::cout, right_flag_);
        std::ostream::operator<<(v19, sub_1400016F0);
        j_j_free(s1);
        return 0;
    }
  }
}
```

整体结构为：

- 初始化flag字符串：POFP{327a6c4304}
- VM指令数组初始化（vm_code）

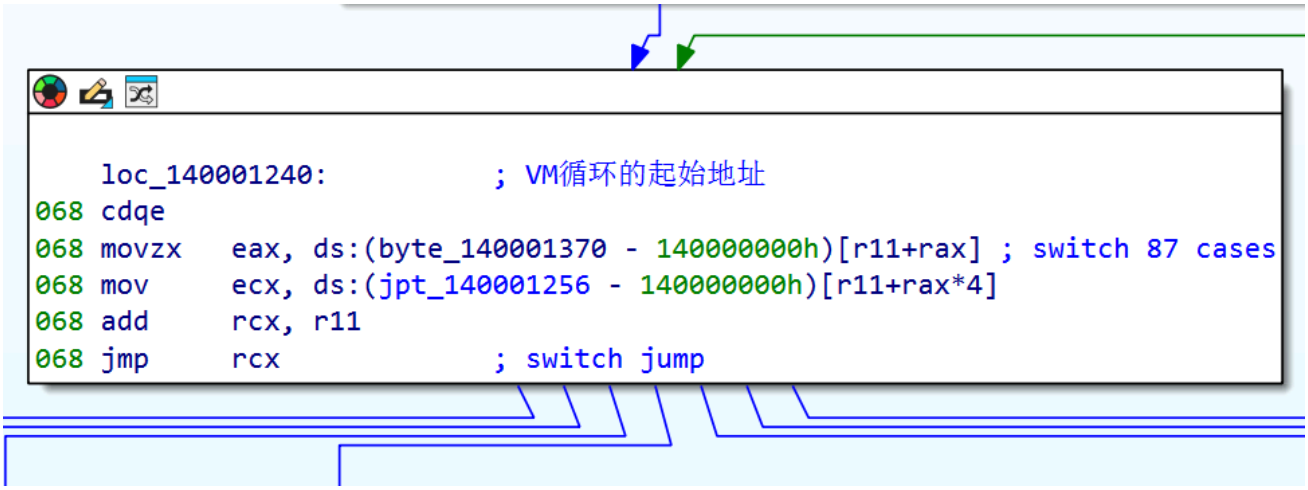
- VM执行逻辑
- 详细VM代码
- 验证输出

2，VM初始化代码分析



3，VM循环详细分析

1. vm循环入口点

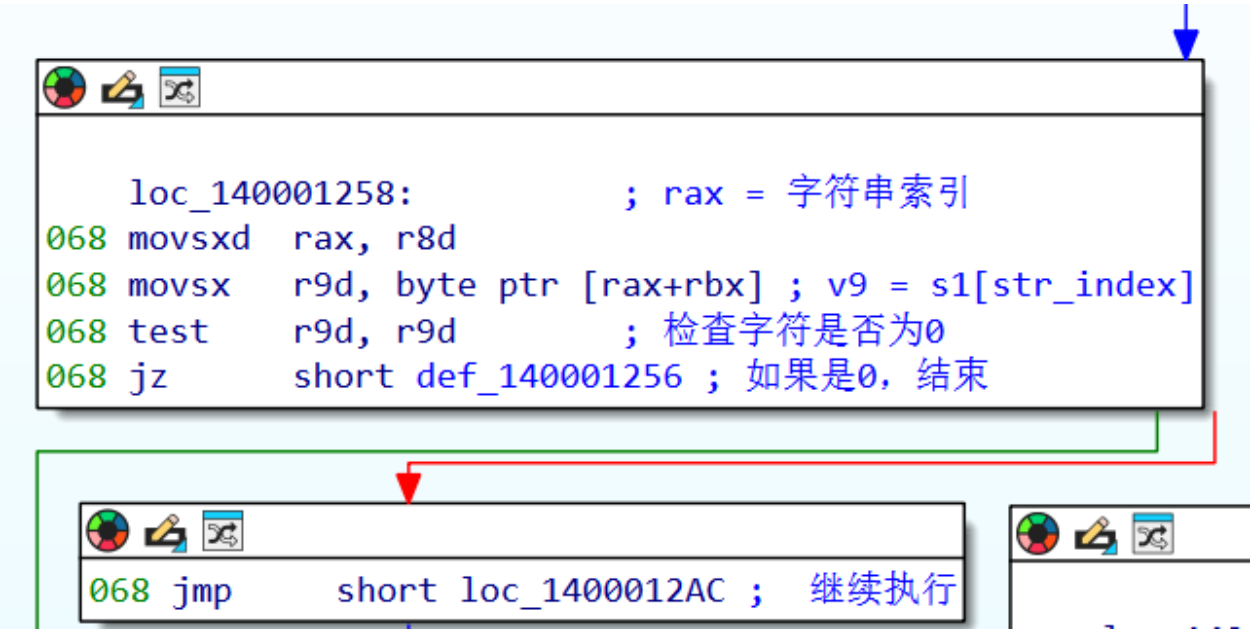


2. 通过分析汇编代码，识别出VM的虚拟寄存器：

寄存器	物理寄存器	用途	初始值
v8	r8d	字符串索引指针	0
v9	r9d	当前字符值	未定义
v10	eax	当前操作码	0
v11	edx	指令指针	1

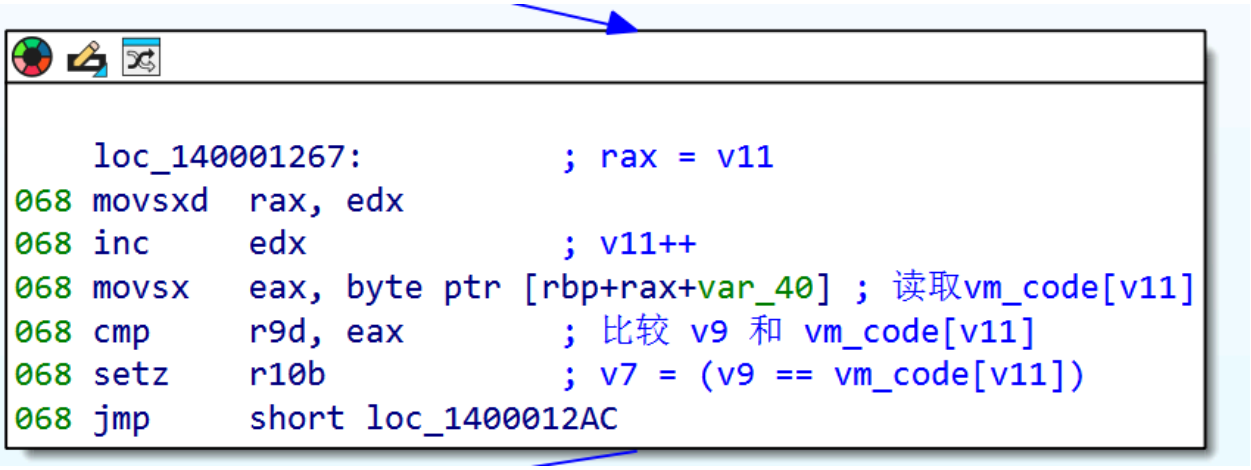
寄存器	物理寄存器	用途	初始值
v7	r10b	比较结果标志	0

3. 各操作码处理逻辑详细分析
   - 操作码 0 (0x10) - 读取字符



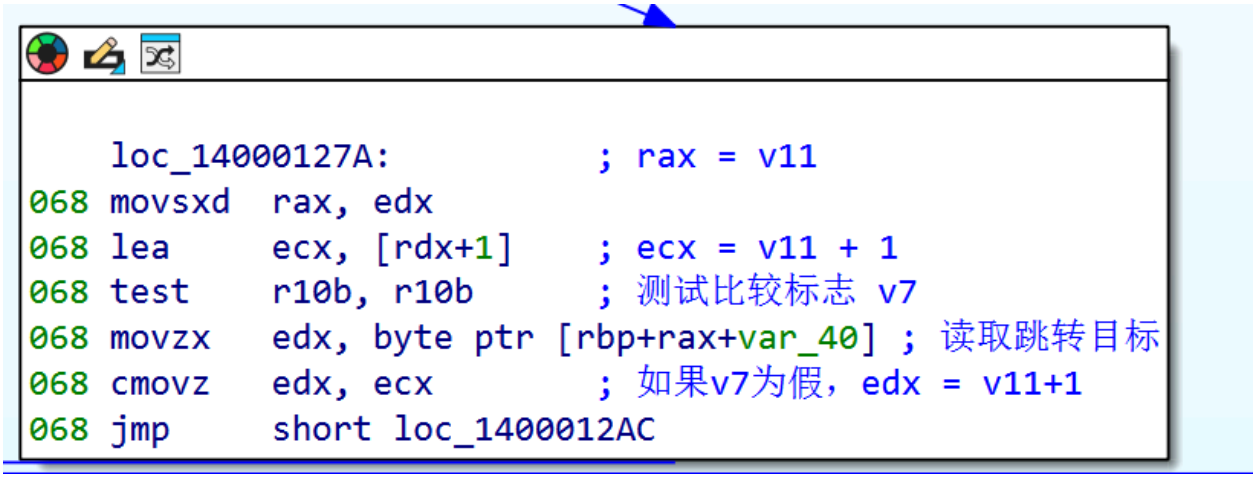
作用：从字符串 `s1` 中读取当前索引位置的字符到 `v9` 寄存器。

   - 操作码 21 (0x25) - 比较字符



作用：比较当前字符 `v9` 与 `vm_code[v11]` 的值，结果存储在 `v7` 中。

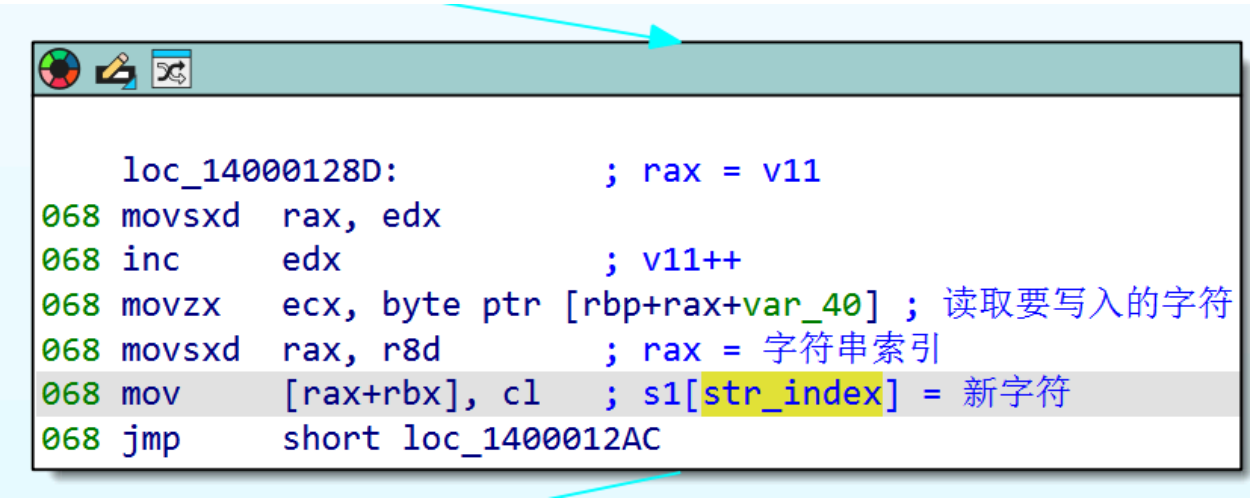
- 操作码 42 (0x3A) - 条件跳转



```
    loc_14000127A:          ; rax = v11
068 movsxd  rax, edx
068 lea     ecx, [rdx+1]    ; ecx = v11 + 1
068 test    r10b, r10b      ; 测试比较标志 v7
068 movzx   edx, byte ptr [rbp+rax+var_40] ; 读取跳转目标
068 cmovz   edx, ecx        ; 如果v7为假，edx = v11+1
068 jmp     short loc_1400012AC
```

作用：如果比较标志 `v7` 为真，则跳转到 `vm_code[v11]` 指定的地址；否则继续顺序执行。

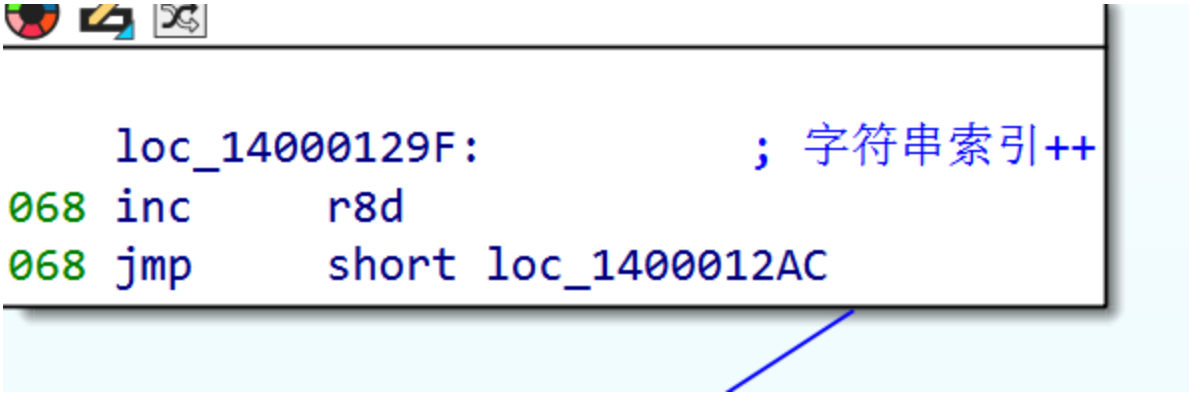
- 操作码 49 (0x41) - 写入字符



```
    loc_14000128D:          ; rax = v11
068 movsxd  rax, edx
068 inc     edx             ; v11++
068 movzx   ecx, byte ptr [rbp+rax+var_40] ; 读取要写入的字符
068 movsxd  rax, r8d        ; rax = 字符串索引
068 mov     [rax+rbx], cl   ; s1[str_index] = 新字符
068 jmp     short loc_1400012AC
```

作用：将 `vm_code[v11]` 的值写入字符串 `s1` 的当前位置。

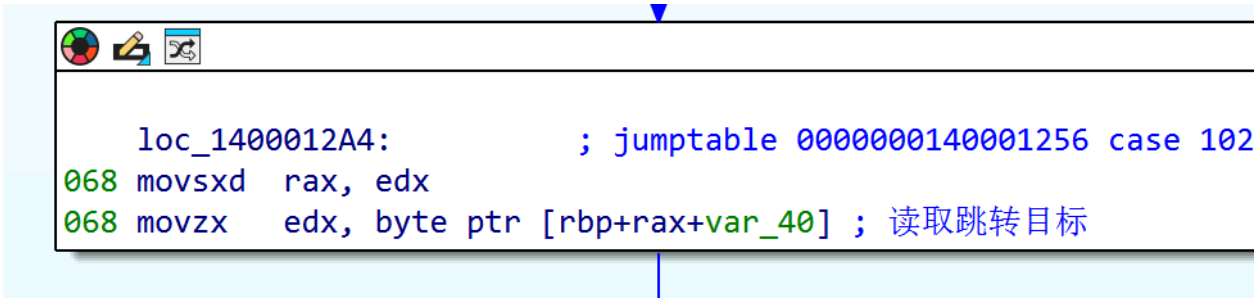
- 操作码 69 (0x55) - 移动指针



```
    loc_14000129F:          ; 字符串索引++
068 inc     r8d
068 jmp     short loc_1400012AC
```

作用：将字符串索引 `v8` 加1，移动到下一个字符。

- 操作码 86 (0x66) - 无条件跳转



作用：无条件跳转到 `vm_code[v11]` 指定的地址。

4，基于以上分析，让ai编写详细的Python模拟器：

```python
#!/usr/bin/env python3
"""
EZ_VM.exe虚拟机详细模拟器
包含完整的VM状态跟踪和调试输出
"""

class EZ_VM_Simulator:
    def __init__(self):
        # VM指令数组
        self.vm_code = [
            0x10, 0x25, 0x32, 0x3A,  # var_40
            0x0B, 0x25, 0x63, 0x3A,  # \v % c :
            0x0B, 0x66, 0x0D, 0x41,  # \v f \r A
            0x31, 0x55, 0x66, 0x00,  # 1 U f \0
            0xFF                     # 结束标志
        ]

        # 初始字符串
        self.s1 = list("POFP{327a6c4304}")

        # VM状态寄存器
        self.v8 = 0      # 字符串索引
        self.v9 = None   # 当前字符
        self.v10 = 0     # 当前操作码
        self.v11 = 1     # 指令指针
        self.v7 = False  # 比较标志

        # 执行历史
        self.steps = []
        self.step_count = 0

    def get_opcode_name(self, opcode):
        """获取操作码名称"""
```

```
        opcode_names = {
            0: "READ_CHAR",
            21: "COMPARE_CHAR",
            42: "CONDITIONAL_JUMP",
            49: "WRITE_CHAR",
            69: "MOVE_POINTER",
            86: "UNCONDITIONAL_JUMP"
        }
        return opcode_names.get(opcode, f"UNKNOWN({opcode})")

    def execute_step(self):
        """执行单步VM指令"""
        if self.v11 >= len(self.vm_code) or self.vm_code[self.v11] == 0xFF:
            return False

        # 记录当前状态
        step_info = {
            'step': self.step_count,
            'v11': self.v11,
            'v8': self.v8,
            'v7': self.v7,
            'v9': self.v9,
            's1': ''.join(self.s1)
        }

        # 读取操作码
        raw_byte = self.vm_code[self.v11]
        self.v10 = raw_byte - 0x10
        step_info['raw_byte'] = f"0x{raw_byte:02x}"
        step_info['opcode'] = self.v10
        step_info['opcode_name'] = self.get_opcode_name(self.v10)

        # 执行操作
        if self.v10 == 0:  # 读取字符
            if self.v8 < len(self.s1):
                self.v9 = self.s1[self.v8]
                step_info['action'] = f"读取 s1[{self.v8}] = '{self.v9}'"
            else:
                step_info['action'] = "字符串索引超出范围"

        elif self.v10 == 21:  # 比较字符
            self.v11 += 1
            if self.v11 < len(self.vm_code):
                expected = self.vm_code[self.v11]
                if self.v9 is not None:
                    self.v7 = (ord(self.v9) == expected)
```

```
                    step_info['action'] = f"比较 '{self.v9}' (0x{ord(self.v9):02x})
与 0x{expected:02x}，结果: {self.v7}"
                else:
                    step_info['action'] = "当前字符未定义，无法比较"
                    self.v7 = False
            else:
                step_info['action'] = "VM代码数组越界"

        elif self.v10 == 42:  # 条件跳转
            self.v11 += 1
            if self.v11 < len(self.vm_code):
                jump_target = self.vm_code[self.v11]
                if self.v7:
                    old_v11 = self.v11
                    self.v11 = jump_target
                    step_info['action'] = f"条件跳转: 比较为真，跳转到
0x{jump_target:02x} (原v11={old_v11})"
                    step_info['jump'] = True
                else:
                    step_info['action'] = f"条件跳转: 比较为假，继续执行 (跳转目标:
0x{jump_target:02x})"
                    step_info['jump'] = False
            else:
                step_info['action'] = "VM代码数组越界"

        elif self.v10 == 49:  # 写入字符
            self.v11 += 1
            if self.v11 < len(self.vm_code) and self.v8 < len(self.s1):
                new_char_val = self.vm_code[self.v11]
                new_char = chr(new_char_val)
                old_char = self.s1[self.v8]
                self.s1[self.v8] = new_char
                step_info['action'] = f"写入字符: s1[{self.v8}] = '{new_char}'
(0x{new_char_val:02x})，原字符: '{old_char}'"
            else:
                step_info['action'] = "VM代码数组越界或字符串索引越界"

        elif self.v10 == 69:  # 移动指针
            old_v8 = self.v8
            self.v8 += 1
            step_info['action'] = f"移动指针: v8从{old_v8}增加到{self.v8}"

        elif self.v10 == 86:  # 无条件跳转
            self.v11 += 1
            if self.v11 < len(self.vm_code):
                jump_target = self.vm_code[self.v11]
```

```
                old_v11 = self.v11
                self.v11 = jump_target
                step_info['action'] = f"无条件跳转: 跳转到 0x{jump_target:02x} (原
v11={old_v11})"
                step_info['jump'] = True
            else:
                step_info['action'] = "VM代码数组越界"

        else:
            step_info['action'] = f"未知操作码: {self.v10}"
            return False

        # 如果不是跳转指令，v11自增
        if self.v10 not in [42, 86] or not step_info.get('jump', False):
            self.v11 += 1

        # 保存步骤信息
        self.steps.append(step_info)
        self.step_count += 1

        return True

    def run(self, max_steps=200):
        """运行VM模拟器"""
        print("=== EZ_VM虚拟机详细模拟 ===")
        print(f"初始字符串: {''.join(self.s1)}")
        print(f"VM代码长度: {len(self.vm_code)} 字节")
        print(f"初始状态: v8={self.v8}, v11={self.v11}")
        print("-" * 80)

        step_num = 0
        while step_num < max_steps and self.execute_step():
            step_info = self.steps[-1]
            print(f"步骤 {step_info['step']:3}: v11={step_info['v11']:2}, 操作码=
{step_info['opcode_name']:20}")
            print(f"      原始字节: {step_info['raw_byte']}, 操作:
{step_info['action']}")
            print(f"      当前状态: v8={step_info['v8']}, v7={step_info['v7']}, v9=
{step_info['v9']}")
            print(f"      当前字符串: {step_info['s1']}")
            print("-" * 80)
            step_num += 1

        print(f"\n模拟完成! 总步数: {self.step_count}")
        print(f"最终字符串: {''.join(self.s1)}")
        print(f"最终状态: v8={self.v8}, v11={self.v11}, v7={self.v7}")
```

```
        return ''.join(self.s1)

def main():
    """主函数"""
    simulator = EZ_VM_Simulator()
    result = simulator.run()

    print(f"\n=== 分析结果 ===")
    print(f"VM修改后的字符串: {result}")

    # 验证flag格式
    if result.startswith("POFP{") and result.endswith("}"):
        print(f"✓ 有效的flag格式: {result}")
    else:
        print(f"⚠ 非标准flag格式: {result}")

    return result

if __name__ == "__main__":
    flag = main()
    print(f"\n最终flag: {flag}")
```

5，运行脚本得到flag

```
模拟完成! 总步数: 200
最终字符串: POFP{317a614304}
最终状态: v8=25, v11=5, v7=False

=== 分析结果 ===
VM修改后的字符串: POFP{317a614304}
✓ 有效的flag格式: POFP{317a614304}

最终flag: POFP{317a614304}
```

Lua

题目信息

- **文件**: hello.lua
- **类型**: Lua脚本逆向
- **Flag格式**: POFP{...}

分析

1. 脚本结构分析

首先查看hello.lua的内容：

```
local b = 'ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789+/'
local function dec(data)
    data = string.gsub(data, '[^' .. b .. '=]', '')
    return (data:gsub('.', function(x)
        if (x == '=') then return '' end
        local r, f = '', (b:find(x) - 1)
        for i = 6, 1, -1 do r = r .. (f % 2 ^ i - f % 2 ^ (i - 1) > 0 and '1' or
'0') end
        return r;
    end):gsub('%d%d%d?%d?%d?%d?%d?%d?', function(x)
        if (#x ~= 8) then return '' end
        local c = 0
        for i = 1, 8 do c = c + (x:sub(i, i) == '1' and 2 ^ (8 - i) or 0) end
        return string.char(c)
    end))
end

local args = {...}

if #args ~= 1 then
    print("[-] use `lua hello.lua flag{fake_flag}`")
    return
end

print(load(dec("G0x1YVQAGZMNChoKBAgIeFYAAAAAAAAAAAAAACh3QAGAoa4BAA6gkwAAAFIAAAABgf9
/tAEAAJUBA36vAYAHAQIAgEqBCQALAwAADgMGAYADAQAVBAWArwKABosEAAKOBAkDCwUAAg4FCgSABQAAFQ
YFgK8CgAaVBgWArwKABkQFBADEBAACnwQJBbAEBQ9EAwQBSQEKAE8BAABFgQEARoEAAEaBAQCGBIZ0YWJsZ
QSHaW5zZXJ0BIdzdHJpbmcEhWJ5dGUEhHN1YgNyAAAAAAAAAIEAAACBgKetAAADjQsAAAAOAAABiQABAAMB
AQBEAAMCPAADADgBAIADAAIASAACALgAAIADgAIASAACAEcAAQCGBIZ0YWJsZQSHY29uY2F0BIItFL0yMC0
zMC0xOS0yMS05LTM5LTQ1LTAtNDUtNjItNy03MC0zOC00NS02My03MC0xLTYtNjUtMzItODMtMTUEj1lvdS
BBcmUgUmlnaHQhBIdXcm9uZyGCAAAAAQEAgICAgICAgICA"))(args[1]))
```

2. 关键逻辑理解

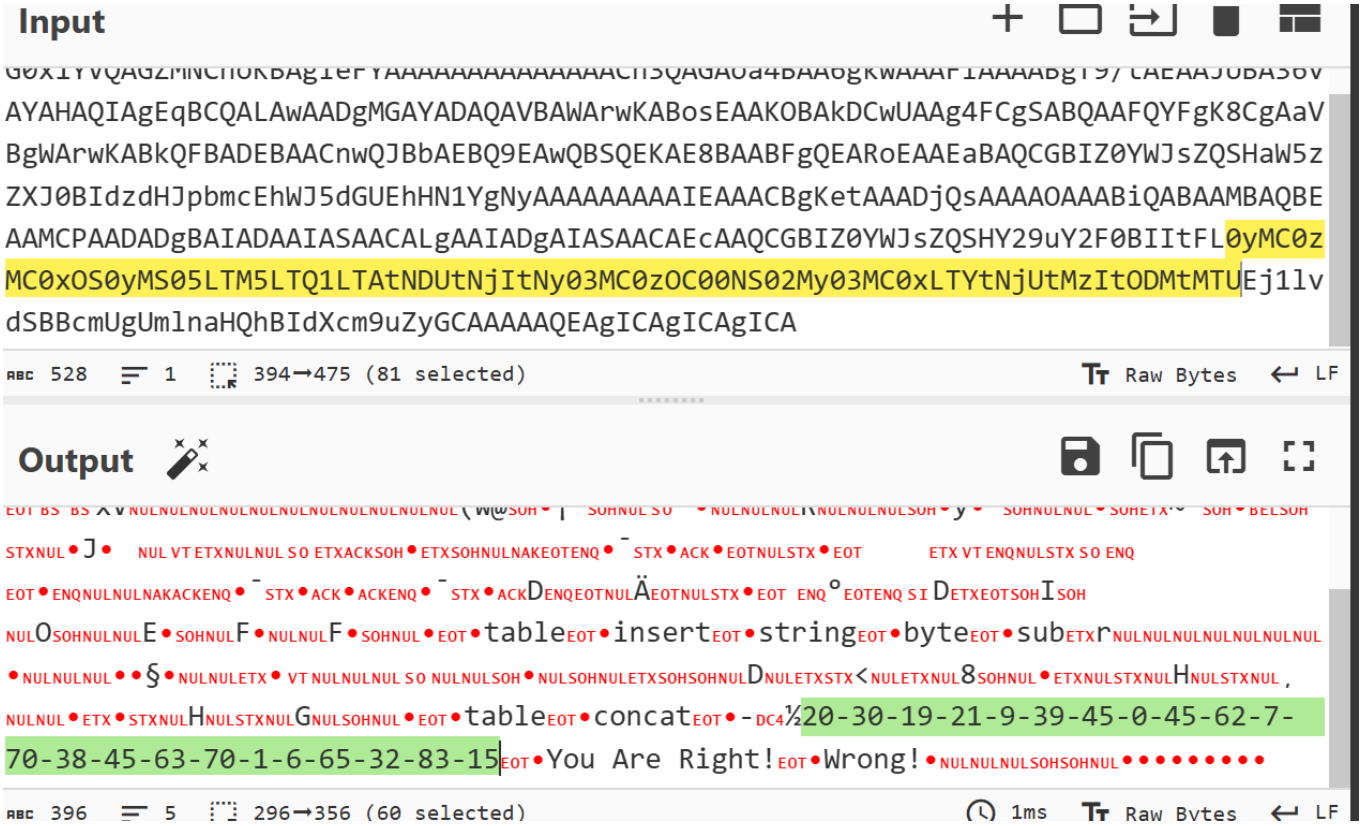
脚本的主要逻辑：

1. 定义了一个自定义的base64解码函数 `dec()`
2. 检查命令行参数数量，要求输入一个参数（flag）
3. 使用 `dec()` 函数解码一个长字符串
4. 使用 `load()` 加载解码后的内容（Lua字节码）

5. 执行加载的字节码，传入用户输入的参数

3. 解码base64字符串

首先需要理解 `dec()` 函数的作用。这是一个自定义的base64解码实现。我们可以用赛博厨子解码：



关键发现：数字序列 `20-30-19-21-9-39-45-0-45-62-7-70-38-45-63-70-1-6-65-32-83-15`

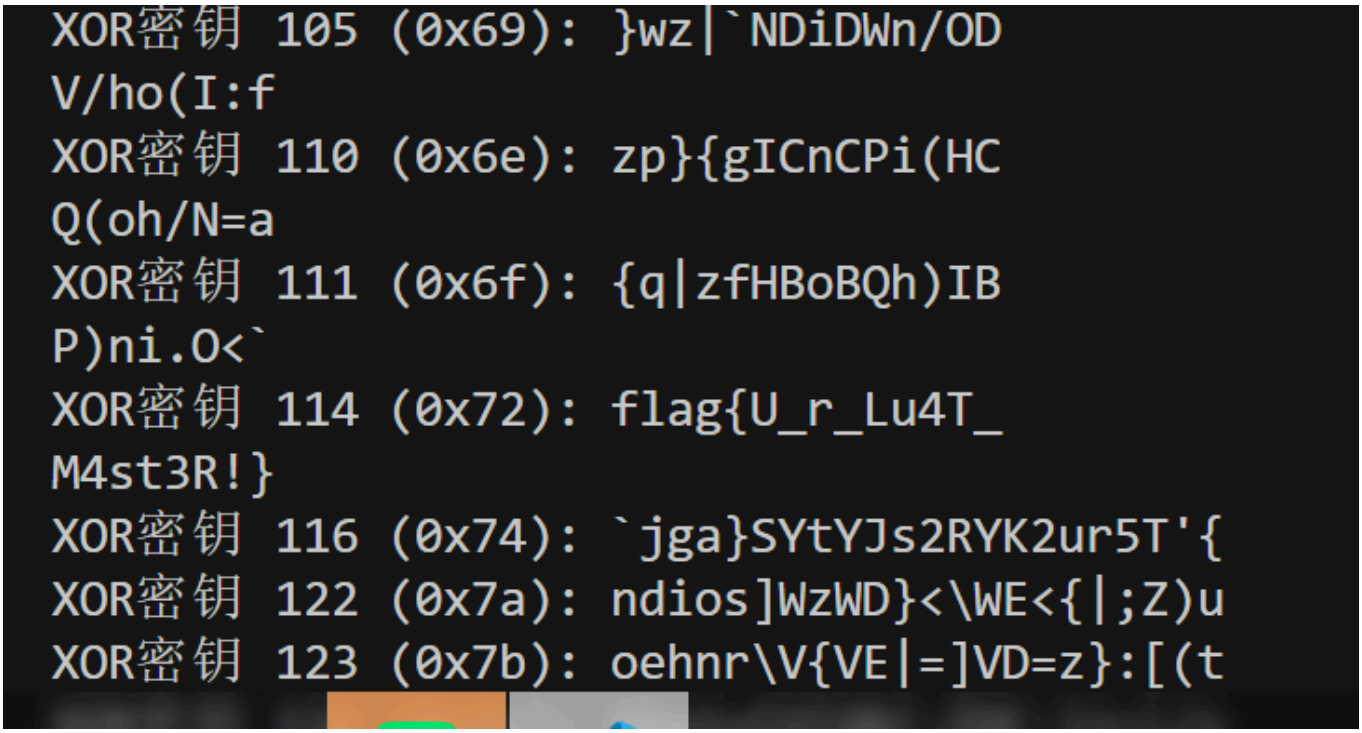
6，尝试xor解密

```
numbers = [20, 30, 19, 21, 9, 39, 45, 0, 45, 62, 7, 70, 38, 45, 63, 70, 1, 6, 65,
32, 83, 15]

for key in range(256):
    result_chars = []
    valid = True
    for n in numbers:
        c = n ^ key
        if 32 <= c <= 126:  # 可打印ASCII范围
            result_chars.append(chr(c))
        else:
            valid = False
            break
    if valid:
        result_str = ''.join(result_chars)
```

```
        if 'flag' in result_str.lower() or '{' in result_str or '}' in result_str:
            print(f'XOR密钥 {key:3d} (0x{key:02x}): {result_str}')
```

运行得到：



可以看到其中密钥为114的时候，结果是
flag{U_r_Lu4T_M4st3R!}

但是比赛说：flag头是POFP{}

所以最终flag是POFP{U_r_Lu4T_M4st3R!}

RRRacket

信息收集

搜索.zo文件

- 是 **Racket 语言的编译字节码文件**
- 由 `.rkt`（源文件）编译生成

类似.py文件编译生成.pyc文件

分析

1.下载安装便携版Racket

2，使用raco decompile反编译chall.zo

```
D:\Downloads\racket-minimal-9.0-x86_64-win32-cs\racket>raco decompile chall.zo > decompiled.rkt

D:\Downloads\racket-minimal-9.0-x86_64-win32-cs\racket>_
```

打开rkt文件发现包含大量机器码

```
(require (lib "racket/main.rkt") (lib "racket/format.rkt"))
'(recurs: (lib "racket/main.rkt"))
(provide)
(define byte->hex
  (lambda (a0)
    "D:\\Downloads\\racket-minimal-9.0-x86_64-win32-cs\\racket\\1.rkt:11:1"
    (#%machine-code
     #"I\203nh\1\17\204\314\1\0\0H\203\375\1\17\205\266\1\0\0I\211u\20M9nH\17\206
(define bytes->hex
  (lambda (a0)
    "D:\\Downloads\\racket-minimal-9.0-x86_64-win32-cs\\racket\\1.rkt:14:1"
    (#%machine-code
     #"I\203nh\1\17\204_\3\0\0H\203\375\1\17\205I\3\0\0I\211u\20M\211}\bM9nH\17\2
(define rc4-bytes
  (lambda (a0 a1)
    "D:\\Downloads\\racket-minimal-9.0-x86_64-win32-cs\\racket\\1.rkt:20:1"
    (#%machine-code
     #"I\203nh\1\17\204\215\24\0\0H\203\375\2\17\205w\24\0\0I\211u\20I\211U\30M\2
(define read-line/trim
  (lambda ()
    "D:\\Downloads\\racket-minimal-9.0-x86_64-win32-cs\\racket\\1.rkt:59:1"
    (#%machine-code
```

但可以看到有byte -> hex 和 rc4-bytes模块

3，使用Linux命令行，查找关键字符串

```
strings chall.zo | grep -i -E "(key|target|flag|rc4|crypt)"
```

```
┌──(root㉿kali)-[~/桌面/work]
└─# strings chall.zo | grep -i -E "(key|target|flag|rc4|crypt)"
pofpkey
$'      rc4-bytes
key;
KEY-STR#
TARGET-HEX#
        rc4-bytes#
keyword-procedure-extract
struct:keyword-procedure
        rc4-bytes
TARGET-HEX
KEY-STR
KEY-STR
TARGET-HEX$
        rc4-(
key[
Input flag:
key#
TARGET-HEX
        rc4-bytes
KEY-STR
```

这明显是一个加密算法：

1. 程序会要求输入 flag (`Input flag:`)
2. 使用 RC4 加密 (`rc4-bytes`)
3. 与目标值比较 (`TARGET-HEX`)
4. 输出 `Correct!` 或 `Wrong!`

4，查找关键数据

1. 寻找加密的目标值

在文件中搜索十六进制字符串：

```
import re

with open('chall.zo', 'rb') as f:
    data = f.read()

# 查找长十六进制字符串

hex_pattern = re.compile(b'[0-9a-fA-F]{32,}')

matches = hex_pattern.findall(data)

print(matches)
```

运行

```
PS D:\Dataself\code> & "D:/Program Files/Python/Python313/python.exe" d:/Dataself/code/find_target.py
[b'd31fa2c26c024feddef9b38853790c00285e367b916d49a111bfc2bcfb74']
```

找到目标密文：

```
d31fa2c26c024feddef9b38853790c00285e367b916d49a111bfc2bcfb74
```

2. 寻找密钥

搜索出现“key”的地址

```
with open('chall.zo', 'rb') as f:
    data = f.read()
```

```python
# 搜索所有包含 "key" 的位置
key_positions = []
pos = 0
while True:
    pos = data.find(b'key', pos)
    if pos == -1:
        break
    key_positions.append(pos)
    pos += 1

print(f"Found 'key' at positions: {[hex(p) for p in key_positions]}")
```

```
PS D:\Dataself\code> & "D:/Program Files/Python/Python313/python.exe" d:/Dataself/code/find_key.py
Found 'key' at positions: ['0xd8d', '0x19b8', '0x1fa8', '0x1fca', '0x34dd', '0x3f4c', '0x4006']
```

先查看 0xd8d 附近的上下文

```python
with open('chall.zo', 'rb') as f:
    data = f.read()

key_pos = 0xd8d
start = max(0, key_pos - 50)
end = min(len(data), key_pos + 50)
context = data[start:end]

print(f"Context around 'key' at {hex(key_pos)}:")
for i in range(0, len(context), 16):
    chunk = context[i:i+16]
    hex_part = ' '.join(f'{b:02x}' for b in chunk)
    ascii_part = ''.join(chr(b) if 32 <= b < 127 else '.' for b in chunk)
    print(f"  {start+i:04x}: {hex_part:<48} {ascii_part}")
```

```
Context around 'key' at 0xd8d:
  0d5b: b8 32 00 51 ff e0 ee 03 00 01 00 43 d1 7f fb 03  .2.Q.......C....
  0d6b: 31 02 00 2e 00 0a b6 03 57 e9 5a fc ff ff 36 00  1.......W.Z...6.
  0d7b: 3a d0 e9 3e 11 00 ff 37 e0 19 00 74 27 07 70 6f  :..>...7...t'.po
  0d8b: 66 70 6b 65 79 00 0a 11 00 02 08 63 6f 6e 73 74  fpkey......const
  0d9b: 61 6e 74 00 18 11 01 13 14 76 61 72 69 61 62 6c  ant......variabl
  0dab: 65 2d 73 65 74 21 2f 64 65 66 69 6e 65 26 72 6b  e-set!/define&rk
  0dbb: 74 2d 6c 69                                      t-li
```

在文件中发现 "pofpkey" 字符串，可能是密钥。

5，总结

rc4加密

密文（hex）：d31fa2c26c024feddef9b38853790c00285e367b916d49a111bfc2bcfb74

密钥：pofpkey

6，解密脚本

```
import binascii

def rc4(key, data):
    """
    由于 RC4 是对称加密，加密和解密使用相同的函数
    """

    # 初始化 S-box
    S = list(range(256))
    j = 0
    key_length = len(key)
    # KSA (Key Scheduling Algorithm)
    for i in range(256):
        j = (j + S[i] + key[i % key_length]) % 256
        S[i], S[j] = S[j], S[i]

    # PRGA (Pseudo-Random Generation Algorithm)
    i = j = 0
    result = bytearray()

    for byte in data:
        i = (i + 1) % 256
        j = (j + S[i]) % 256
        S[i], S[j] = S[j], S[i]
        k = S[(S[i] + S[j]) % 256]
        result.append(byte ^ k)

    return bytes(result)

target_hex = "d31fa2c26c024feddef9b38853790c00285e367b916d49a111bfc2bcfb74"
ciphertext = binascii.unhexlify(target_hex)
key = b"pofpkey"

decrypted = rc4(key, ciphertext)
print(f"Decrypted: {decrypted}")
print(f"ASCII: {decrypted.decode('ascii')}")
```

7，运行得到flag

```
PS D:\Dataself\code> & "D:/Program Files/Python/Python313/python.exe" d:/Dataself/code/rc4.py
Decrypted: b'POFP{Racket_and_rc4_you_know!}'
ASCII: POFP{Racket_and_rc4_you_know!}
PS D:\Dataself\code>
```

POFP{Racket_and_rc4_you_know!}