[ACTF新生赛2020]crypto-des（考点：DES）

原创

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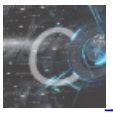

题目：给了三个文件，附件1和附件2，以及加密的 easydes.zip 压缩包，通过解密附件1,2以获取解密 zip 的 key

附件1 encryptedkey.txt

```
72143238992041641000000.000000,
771353571780065040000000000000000.000000,
11258683456164354000000000.000000,
67378029765916820000000.000000,
755534860921847030000000000000.000000,
4397611913739958700000.000000,
76209378028621039000000000000000000.000000
```

附件2 hint.txt

```
To solve the key, Maybe you know some interesting data format about C language?
```

附件1，2的问题很好解决，考的是关于数据在内存中的存储。在
[AFCTF2018]MagicNum中有一样的题目

解题代码：

```
from libnum import*
import struct
import binascii

s = [72143238992041641000000.000000,771353571780065040000000000000000.000000,112586834561643540000000.000000,673
78029765916820000000.000000,755534860921847030000000000000.000000,439761191373995870000.000000,76209378028621039
000000000000000.000000]
a = ''
b = ''
for i in s:
    i = float(i)
    a += struct.pack('<f',i).hex()        #小端
print(a)

for j in s:
    i = float(i)
    b += struct.pack('>f',i).hex()        #小端
print(b)

a = 0x496e74657265737472696e67204964656120746f20656e6372797074
b = 0x747079727470797274707972747079727470797274707972747079727470797274707972
print(n2s(a))
print(n2s(b))
```

获取的zip文件：

```
import pyDes
import base64
from FLAG import flag
deskey = "********"
DES = pyDes.des(deskey)
DES.setMode('ECB')
DES.Kn = [
   [1, 0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 1, 0, 1, 1, 0, 0, 1, 0, 0, 0, 1, 1, 0, 0, 0, 1, 1, 1, 0, 1, 1, 0, 0, 0, 0,
0, 1, 1, 1, 1, 0, 0, 1, 1, 0, 0, 0],
   [1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 1, 1, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1, 1, 0, 0, 0, 1, 1,
0, 1, 1, 0, 0, 0, 1, 0, 0, 1, 1, 0],
   [0, 1, 1, 0, 0, 1, 0, 0, 1, 1, 0, 1, 0, 1, 1, 0, 0, 1, 1, 1, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 0, 0, 0, 0, 0, 0,
1, 0, 1, 1, 1, 1, 1, 0, 0, 1, 0, 0],
   [1, 1, 0, 0, 0, 1, 1, 0, 1, 1, 0, 1, 0, 0, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 0, 0, 0, 1, 0, 0, 0, 0, 1, 1, 1, 0,
1, 0, 0, 0, 1, 1, 0, 1, 0, 0, 1, 1],
   [0, 0, 1, 0, 1, 1, 1, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 1, 0, 1, 0, 0, 1, 1, 0, 1, 1, 0, 0, 1, 1, 1, 1, 0, 1, 0,
0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 0, 1],
   [0, 0, 1, 0, 1, 1, 1, 1, 0, 1, 0, 1, 0, 0, 0, 1, 0, 0, 0, 0, 1, 0, 1, 1, 1, 0, 1, 0, 1, 0, 1, 1, 0, 0, 1, 0,
0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0],
   [0, 0, 1, 0, 1, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 1, 1, 1, 0, 1, 1, 0, 0, 1, 0, 0, 1, 0, 1, 1, 0, 0, 1, 1, 0, 1,
0, 0, 1, 1, 0, 0, 0, 0, 0, 1, 1, 0],
   [0, 0, 0, 1, 1, 1, 0, 1, 0, 1, 0, 0, 1, 0, 0, 0, 1, 0, 0, 1, 1, 0, 0, 1, 0, 1, 0, 1, 0, 1, 0, 0, 0, 1, 0, 0,
0, 1, 0, 0, 1, 1, 1, 0, 0, 1, 1, 0],
   [1, 0, 0, 1, 1, 1, 0, 1, 0, 1, 0, 0, 1, 0, 0, 1, 1, 1, 0, 0, 1, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1,
1, 0, 0, 1, 0, 1, 0, 1, 0, 1, 0, 0],
   [0, 0, 0, 1, 0, 0, 1, 0, 0, 1, 1, 0, 1, 0, 0, 1, 1, 0, 1, 0, 1, 1, 0, 1, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 1, 0,
0, 1, 0, 0, 1, 0, 1, 1, 1, 0, 0, 0],
   [0, 0, 0, 1, 1, 0, 0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0, 0, 0, 0, 0, 1, 0, 1, 1, 1, 1, 0, 1, 0, 0, 1, 0, 0, 1, 1,
1, 1, 0, 0, 0, 0, 0, 0, 1, 0, 1, 1],
   [0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 1, 0, 1, 1, 0, 0, 1, 0, 1, 0, 1, 1, 0, 1, 0, 0, 0, 0, 1, 1, 1, 0, 0, 1, 0, 1,
0, 0, 1, 0, 0, 0, 1, 1, 1, 1, 1, 0],
   [1, 1, 0, 1, 0, 0, 0, 1, 1, 0, 1, 0, 0, 1, 0, 0, 1, 0, 1, 0, 0, 1, 0, 0, 0, 0, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1,
1, 0, 0, 1, 1, 1, 1, 0, 0, 1, 0, 0],
   [1, 1, 0, 1, 0, 0, 0, 0, 1, 0, 0, 0, 1, 1, 1, 0, 1, 0, 1, 0, 0, 0, 1, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0,
1, 0, 0, 0, 1, 1, 1, 1, 0, 0, 0, 1],
   [1, 1, 1, 1, 0, 0, 0, 0, 1, 0, 1, 1, 0, 0, 1, 0, 0, 0, 1, 0, 0, 1, 1, 0, 1, 1, 0, 0, 0, 0, 1, 1, 1, 0, 1, 0,
1, 1, 1, 0, 0, 0, 0, 1, 0, 1, 0, 1],
   [1, 0, 1, 0, 0, 0, 0, 0, 1, 0, 1, 1, 1, 1, 1, 0, 0, 0, 1, 0, 0, 1, 1, 0, 1, 0, 1, 0, 0, 0, 0, 1, 1, 0, 0, 1,
0, 0, 1, 0, 0, 0, 0, 0, 1, 0, 1, 1]
  ]
cipher_list = base64.b64encode(DES.encrypt(flag))
#b'vrkgBqeK7+h7mPyWujP8r5FqH5yyVlqv0CXudqoNHVAVdNO8ML4lM4zgez7weQXo'
```

加密文件是一个 DES 题目，密钥都给出来了，直接base64解码后，decrypt()解密就行了。

```python
import pyDes
import base64
from Crypto.Util.number  import*
deskey  = "********"
DES = pyDes.des(deskey)
DES.setMode('ECB')
DES.Kn = [
   [1, 0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 1, 0, 1, 1, 0, 0, 1, 0, 0, 0, 1, 1, 0, 0, 0, 1, 1, 1, 0, 1, 1, 0, 0, 0, 0,
0, 1, 1, 1, 1, 0, 0, 1, 1, 0, 0, 0],
   [1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 1, 1, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1, 1, 0, 0, 0, 1, 1,
0, 1, 1, 0, 0, 0, 1, 0, 0, 1, 1, 0],
   [0, 1, 1, 0, 0, 1, 0, 0, 1, 1, 0, 1, 0, 1, 1, 0, 0, 1, 1, 1, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 0, 0, 0, 0, 0, 0,
1, 0, 1, 1, 1, 1, 1, 0, 0, 1, 0, 0],
   [1, 1, 0, 0, 0, 1, 1, 0, 1, 1, 0, 1, 0, 0, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 0, 0, 0, 1, 0, 0, 0, 0, 1, 1, 1, 0,
1, 0, 0, 0, 1, 1, 0, 1, 0, 0, 1, 1],
   [0, 0, 1, 0, 1, 1, 1, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 1, 0, 1, 0, 0, 1, 1, 0, 1, 1, 0, 0, 1, 1, 1, 1, 0, 1, 0,
0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 0, 1],
   [0, 0, 1, 0, 1, 1, 1, 1, 0, 1, 0, 1, 0, 0, 0, 1, 0, 0, 0, 0, 1, 0, 1, 1, 1, 0, 1, 0, 1, 0, 1, 1, 0, 0, 1, 0,
0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0],
   [0, 0, 1, 0, 1, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 1, 1, 1, 0, 1, 1, 0, 0, 1, 0, 0, 1, 0, 1, 1, 0, 0, 1, 1, 0, 1,
0, 0, 1, 1, 0, 0, 0, 0, 0, 1, 1, 0],
   [0, 0, 0, 1, 1, 1, 0, 1, 0, 1, 0, 0, 1, 0, 0, 0, 1, 0, 0, 1, 1, 0, 0, 1, 0, 1, 0, 1, 0, 1, 0, 0, 0, 1, 0, 0,
0, 1, 0, 0, 1, 1, 1, 0, 0, 1, 1, 0],
   [1, 0, 0, 1, 1, 1, 0, 1, 0, 1, 0, 0, 1, 0, 0, 1, 1, 1, 0, 0, 1, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1,
1, 0, 0, 1, 0, 1, 0, 1, 0, 1, 0, 0],
   [0, 0, 0, 1, 0, 0, 1, 0, 0, 1, 1, 0, 1, 0, 0, 1, 1, 0, 1, 0, 1, 1, 0, 1, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 1, 0,
0, 1, 0, 0, 1, 0, 1, 1, 1, 0, 0, 0],
   [0, 0, 0, 1, 1, 0, 0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0, 0, 0, 0, 0, 1, 0, 1, 1, 1, 1, 0, 1, 0, 0, 1, 0, 0, 1, 1,
1, 1, 0, 0, 0, 0, 0, 0, 1, 0, 1, 1],
   [0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 1, 0, 1, 1, 0, 0, 1, 0, 1, 0, 1, 1, 0, 1, 0, 0, 0, 0, 1, 1, 1, 0, 0, 1, 0, 1,
0, 0, 1, 0, 0, 0, 1, 1, 1, 1, 1, 0],
   [1, 1, 0, 1, 0, 0, 0, 1, 1, 0, 1, 0, 0, 1, 0, 0, 1, 0, 1, 0, 0, 1, 0, 0, 0, 0, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1,
1, 0, 0, 1, 1, 1, 1, 0, 0, 1, 0, 0],
   [1, 1, 0, 1, 0, 0, 0, 0, 1, 0, 0, 0, 1, 1, 1, 0, 1, 0, 1, 0, 0, 0, 1, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0,
1, 0, 0, 0, 1, 1, 1, 1, 0, 0, 0, 1],
   [1, 1, 1, 1, 0, 0, 0, 0, 1, 0, 1, 1, 0, 0, 1, 0, 0, 0, 1, 0, 0, 1, 1, 0, 1, 1, 0, 0, 0, 0, 1, 1, 1, 0, 1, 0,
1, 1, 1, 0, 0, 0, 0, 1, 0, 1, 0, 1],
   [1, 0, 1, 0, 0, 0, 0, 0, 1, 0, 1, 1, 1, 1, 1, 0, 0, 0, 1, 0, 0, 1, 1, 0, 1, 0, 1, 0, 0, 0, 0, 1, 1, 0, 0, 1,
0, 0, 1, 0, 0, 0, 0, 0, 1, 0, 1, 1]
  ]
# cipher_list = base64.b64encode(DES.encrypt(flag))

k = b'vrkgBqeK7+h7mPyWujP8r5FqH5yyVlqv0CXudqoNHVAVdNO8ML4lM4zgez7weQXo'
data = base64.b64decode(k)
# print(data)
flag = DES.decrypt(data)
print(flag)
```