

1. 签到（难度：简单）

盲水印, 使用 BlindWaterMark (项目地址 <https://github.com/chishaxie/BlindWaterMark>) 工具获取水印信息。

```
C:\BlindWaterMark-master>python bwm.py decode C:\Users\lenovo\Desktop\签到\JIT.png C:\Users\lenovo\Desktop\签到\JIT1.png
flag.png
image<C:\Users\lenovo\Desktop\签到\JIT.png> + image(encoded)<C:\Users\lenovo\Desktop\签到\JIT1.png> -> watermark<flag.png>
```

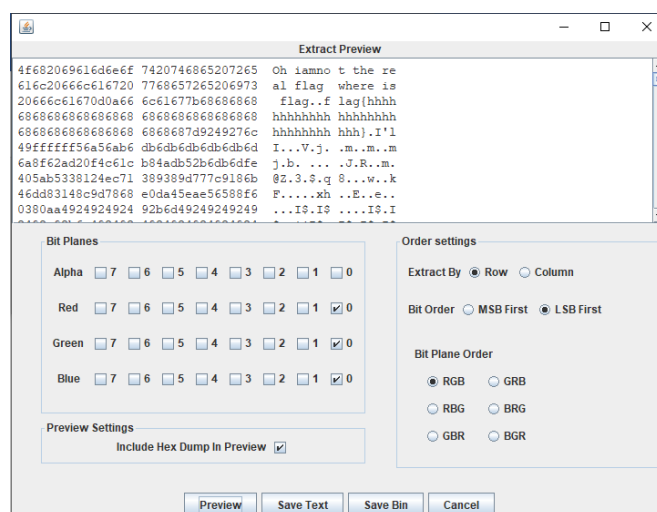
命令: `python bwm.py decode <image> <image(encoded)> <watermark>`



flag: `Dozerctf{bwm_1s_Wonderful!}`

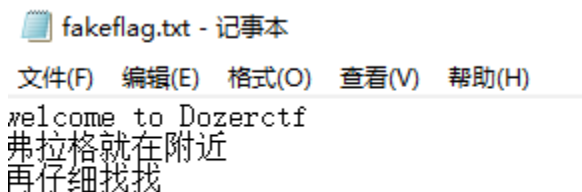
2. 夏日计划（难度：中等）

LSB 发现是假 flag

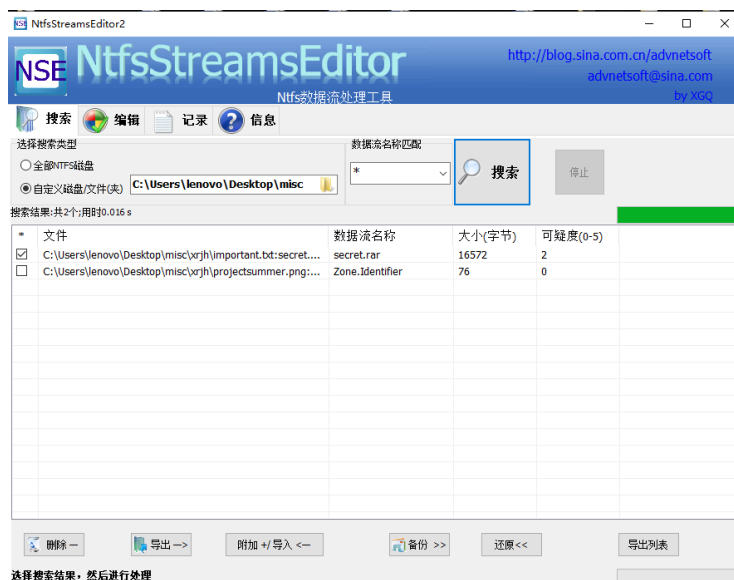


foremost 得到假 flag

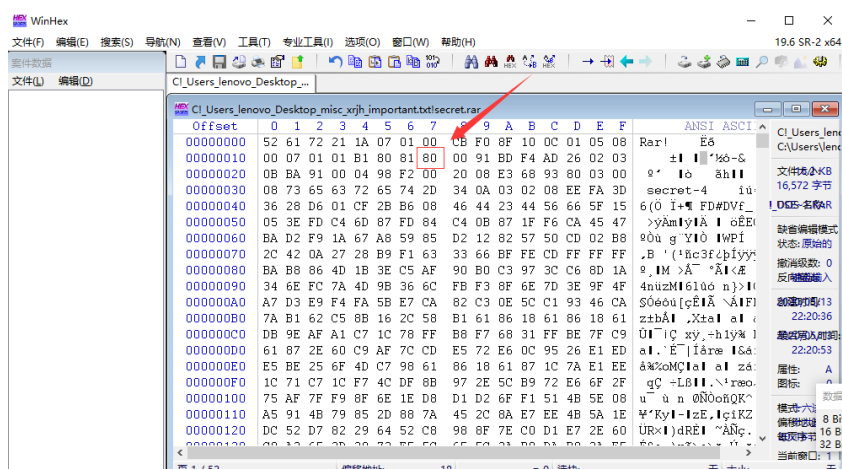
```
root@kali:~/Desktop# foremost project.png
Processing: project.png
|foundat=fakeflag.txt+00I00MU(0WpwJ-J.I00z0g0000g
*|
root@kali:~/Desktop#
```



取出 txt 中隐藏的 NTFS 数据流，将取出的文件合成一个文件。



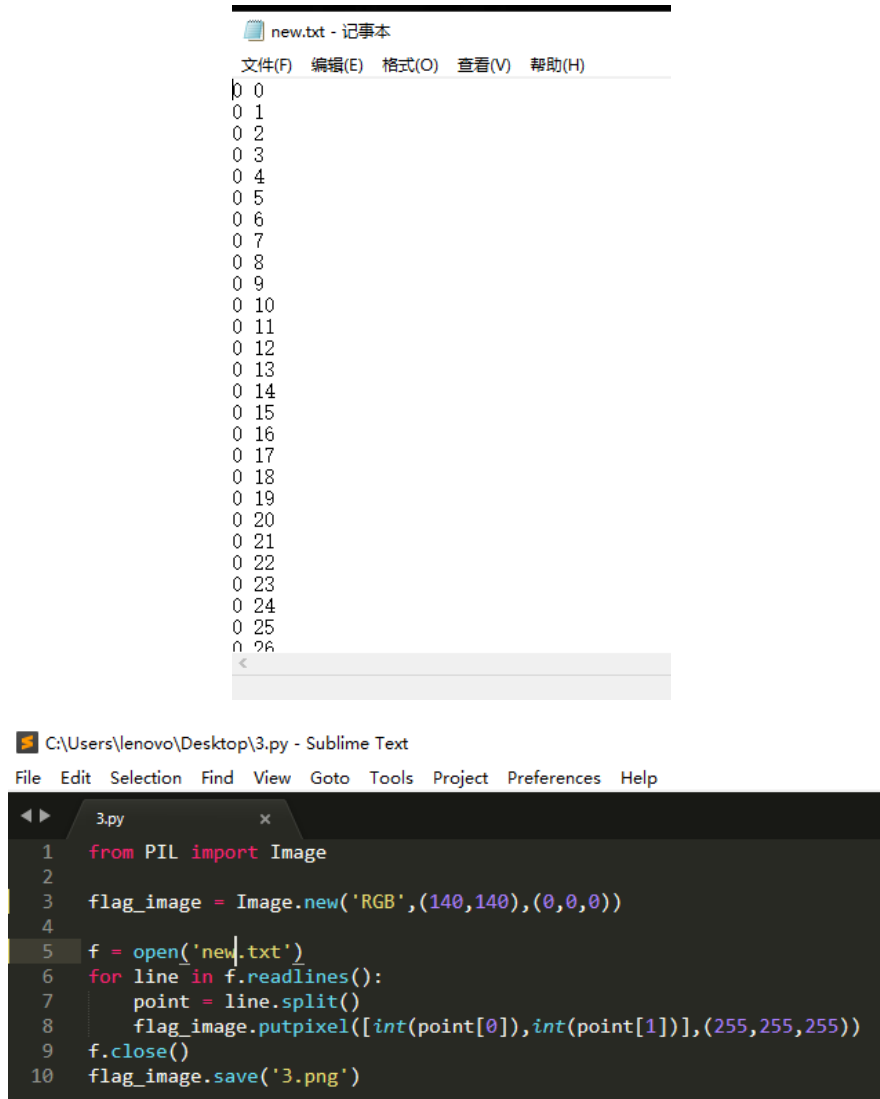
导出 rar，伪加密将 4 改 0



将里面文件 4 合 1


```
C:\Users\lenovo\Desktop>copy /b 1+2+3+4 new.txt
1
2
3
4
已复制          1 个文件。
```

将文档里的坐标转化为图片



最终得到一个汉信码扫码可得 flag



FitQR® PLus Decoder Report		
		返回 首页
Uploaded Status	Save.	<div>Preview</div> 
Uploaded files count	1	
Uploaded file size	900	
Uploaded file name	pic_20200512170902.png	
Uploader elapsed	15622us (15.622ms)	
Decoded Status	Decoded	
Text Charset	GB18030	
HXDecoder elapsed	0us (0ms)	
Decoded Text	我就是弗拉格 Dozerctf{Congratulations_U_find_it}	
		返回 首页

flag: `Dozerctf{Congratulations_U_find_it}`

3. easy_analysis（难度：难）

注：此处 volatility 使用 windows 版，linux 自行修改命令

使用 volatility.exe -f memory imageinfo 判断系统，猜测为 win7SP1X64

```

C:\volatility>volatility.exe -f memory imageinfo
Volatility Foundation Volatility Framework 2.6
INFO : volatility.debug : Determining profile based on KDBG search...
Suggested Profile(s) : Win7SP1x64, Win7SP0x64, Win2008R2SP0x64, Win2008R2SP1x64_23418, Win2008R2SP1x64, Win7SP
1x64_23418
AS Layer1 : WindowsAMD64PagedMemory (Kernel AS)
AS Layer2 : FileAddressSpace (G:\volatility\memory)
PAE type : No PAE
DTB : 0x187000L
KDBG : 0xf800040010a0L
Number of Processors : 1
Image Type (Service Pack) : 1
KPCR for CPU 0 : 0xfffff80004002d00L
KUSER_SHARED_DATA : 0xfffff78000000000L
Image date and time : 2020-05-17 05:13:04 UTC+0000
Image local date and time : 2020-05-17 13:13:04 +0800

```

volatility.exe -f memory --profile=Win7SP1x64 pslist 查看进程

```

C:\WINDOWS\system32\cmd.exe
C:\volatility>volatility.exe -f memory --profile=Win7SP1x64 pslist
Volatility Foundation Volatility Framework 2.6
Offset(V)      Name                PID  PPID  Thds  Hnds  Sess  Wow64  Start
-----
0xfffffa80006a6b30 System                4    0    86   490  -----  0  2020-05-17 03:28:11 UTC+0000
0xfffffa8001f8db30 smss.exe           268    4     2    29  -----  0  2020-05-17 03:28:11 UTC+0000
0xfffffa8001f7bb30 csrss.exe           356   324     9   498    0    0  2020-05-17 03:28:13 UTC+0000
0xfffffa8002971840 wininit.exe          396   324     3    77    0    0  2020-05-17 03:28:14 UTC+0000
0xfffffa8002973300 csrss.exe           404   388    10   247    1    0  2020-05-17 03:28:14 UTC+0000
0xfffffa800298e060 winlogon.exe          460   388     3   117    1    0  2020-05-17 03:28:14 UTC+0000
0xfffffa80029aab30 services.exe         496   396     7   201    0    0  2020-05-17 03:28:14 UTC+0000
0xfffffa80029ba740 lsass.exe            504   396     6   582    0    0  2020-05-17 03:28:14 UTC+0000
0xfffffa80029b25f0 lsm.exe              512   396     9   140    0    0  2020-05-17 03:28:14 UTC+0000
0xfffffa8002aaa060 svchost.exe          616   496    10   362    0    0  2020-05-17 03:28:14 UTC+0000
0xfffffa8002ac2060 vmacthlp.exe         680   496     3    54    0    0  2020-05-17 03:28:14 UTC+0000
0xfffffa8002ae0060 svchost.exe          712   496     8   275    0    0  2020-05-17 03:28:14 UTC+0000

```

使用 volatility.exe -f memory --profile=Win7SP1x64 cmdscan 查看命令行记录，发现 flag 文件夹。

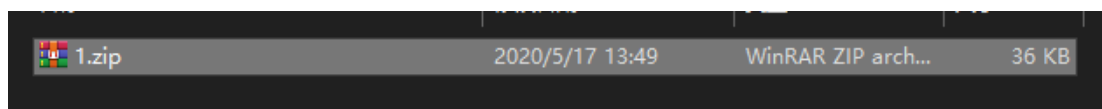
```
G:\volatility>volatility.exe -f memory --profile=Win7SP1x64 cmdscan
Volatility Foundation Volatility Framework 2.6
*****
CommandProcess: conhost.exe Pid: 2400
CommandHistory: 0x2c86d0 Application: cmd.exe Flags: Allocated, Reset
CommandCount: 1 LastAdded: 0 LastDisplayed: 0
FirstCommand: 0 CommandCountMax: 50
ProcessHandle: 0x60
Cmd #0 @ 0x2d1e90: cd Desktop/flag
```

G:\volatility>volatility.exe -f memory --profile=Win7SP1x64 filescan|findstr
"flag"尝试查找带 flag 的文件发现一个 analyse.zip 文件

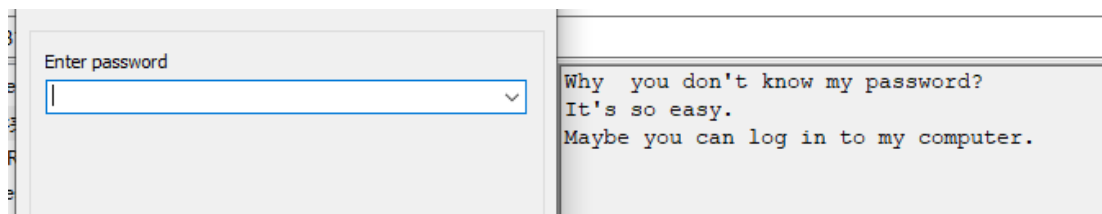
```
G:\volatility>volatility.exe -f memory --profile=Win7SP1x64 filescan | findstr "flag"
Volatility Foundation Volatility Framework 2.6
0x000000001e2fa940 2 1 R--rwd \Device\HarddiskVolume1\Users\13m0nade\Desktop\flag
0x000000001e314f20 2 1 R--rwd \Device\HarddiskVolume1\Users\13m0nade\Desktop\flag
0x000000001e76e070 1 1 R--rw- \Device\HarddiskVolume1\Users\13m0nade\Desktop\flag
0x000000001e85f430 2 0 RW---- \Device\HarddiskVolume1\Users\13m0nade\Desktop\flag\analys
```

volatility.exe -f memory --profile=Win7SP1x64 dumpfiles -Q 0x000000001e85f430 -
-dump-dir=outdir 导出文件，修改文件名

```
G:\volatility>volatility.exe -f memory --profile=Win7SP1x64 dumpfiles -Q 0x000000001e85f430 --dump-dir=outdir
Volatility Foundation Volatility Framework 2.6
DataSectionObject 0x1e85f430 None \Device\HarddiskVolume1\Users\13m0nade\Desktop\flag\analys
```



根据提示查找密码，猜测密码为用户登陆密码



使用 volatility.exe -f memory --profile=Win7SP1x64 hashdump 查看，解出 NTLM

```
G:\volatility>volatility.exe -f memory --profile=Win7SP1x64 hashdump
Volatility Foundation Volatility Framework 2.6
Administrator:500:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c59d7e0c089c0:::
Guest:501:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c59d7e0c089c0:::
13m0nade:1000:aad3b435b51404eeaad3b435b51404ee:575f5313970908467a19d3a5aa269743:::
```

密文:	575f5313970908467a19d3a5aa269743		
类型:	NTLM	▼	[帮助]
		查询	加密

查询结果:
AaBbCc123

解压得到一个 usb 流量包，分析得

```
root@13m0nade:~/Desktop# tshark -r usb.pcap -T fields -e usb.capdata > usbd
ata.txt
Running as user "root" and group "root". This could be dangerous.
root@13m0nade:~/Desktop#
```

usbdata.txt - 记事本

文件(F) 编辑(E) 格式(O) 查看(V) 帮助(H)

```
01:00:ff:ff:00:00:00:00
01:00:01:00:fd:ff:00:00
01:00:05:00:fc:ff:00:00
01:00:05:00:fd:ff:00:00
01:00:03:00:fe:ff:00:00
01:00:05:00:fe:ff:00:00
01:00:07:00:fd:ff:00:00
01:00:07:00:fe:ff:00:00
01:00:07:00:fd:ff:00:00
01:00:08:00:fe:ff:00:00
01:00:09:00:fe:ff:00:00
01:00:09:00:ff:ff:00:00
01:00:0a:00:ff:ff:00:00
01:00:0a:00:ff:ff:00:00
```

运行脚本得到键盘记录

AUTOKEY YLLTMFTNXBKGVCYYDBUHDLCSPSPSTSRMWJ JMNJGTYLKEGITTTOIBGO

```
C:\Users\lenovo\Desktop>python keyboard.py
<GA><GA><DEL><DEL><DEL><DEL><RET><RET><A><RET><CAP>uto<SPACE>key<DEL><DEL><DEL><DEL>key<SPACE><SPACE>ylltmftnxbkgvcyydbu
ldlcpssps<DEL>tswrmwjmnjgtylkegitttoibgo<DEL>a<SPACE><SPACE><SPACE><SPACE>good<SPACE>luck<SPACE>
output :<RET><RET><A><RET>UTOKEY<SPACE><SPACE>YLLTMFTNXBKGVCYYDBUHDLCSPSPSTSRMWJ JMNJGTYLKEGITTTOIBGO<SPACE><SPACE><SPACE><
SPACE>GOOD<SPACE>LUC
```

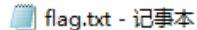
对于自动密钥进行爆破

代码详见

<http://www.practicalcryptography.com/cryptanalysis/stochastic-searching/cryptanalysis-autokey-cipher/>

```
-240.195347874 autokey, klen 9 : "KEYFORZIP", OHNOYOUFINDTHEKEYTHEKEYFORZIPISTHISKEYBOARDSUCKSFORYOU
```

得到的 flag.txt 是 base64 隐写



JdK LMDRFNDcWRDBBMUEwQ1AwMDAwMDBENDk0ODQONT1wMDAwMDIwMDAwMDAwMjAwMDgwnJAwMDAwMEZ=NDc4RDRGQTAWMDAwMDAxNzM1MjQ3NDIwMEFFQ0UxX0U5MDAwMDAwMDQ2NzQxNEQOMTAwMDBCMThtGMEI=RkM2MTA1LMDAwMDAwMjAwMDAxNzQ4NT10RDAwMDA3QT12MDAwMDgWODQwMDAwRkEwMDAwMDA4MEU4MDAwMDd=NTMwMDAwMEVBNjAwMDAwMOE5ODAwMDAxNzcwOUNCQTUxMOMwMDAwMDAwOTcwNDg10TczMDAwMDBFQzQ=MDAwMDBFQzQwMTk1Mk1wRtFCMDAwMEZGNzk0OTQONDE1NDc4NUVVFQ0ZBQzQz5MjZDNTk3NkE2OD1FRER=MOFCNUE3QkVGZNVGN0YwODg0MEEwQUQ4RTk5QTQ5MEE4MkFDOTRBNjZCMjgWNDQwNTkxQUYwMjJfGQTS=NjYyNTU5MDg4MDQzOE1QzBFMz1FMDJCNzA1MjEzOEUzOEUwN0I1MDgOMTMwRTk4QzgwNDA0MDFDMDP=REJDQjk5Rdk5Njk3NzVBN0VERkF0EU3QTg5NzRCQjZFNkU2NkFBNDdDRkQ5N0IzNUZGNkFGNkRBNkL=NTdCRkZFQkZGRT1GQjdDMkQ3NT13NkE1NkM1MzY5RUE3MzI15QTdCOUQORkJBMTZDNzM1NTRBREY5NDd=NTNFOTc2NjFQCQFDMkZCRUJGQzYDUYUFGRDZENTk30DZGMURDNzUyM0FCRTk3QUU1NDAzOUZBRjJFQTX=NE50Tc4NkYQRUDQ1QjJgMDMyV0U10TJBRUVEOTk0N0E50TRBNMQxRENCREM3REM5Nz4M1RTY1NUI2RjS=2UQzQkU5NDdBUMVDQjNBRjRBNTE5Qjk3RTc4NTVFQYU1NTHFQURCQk1MjJ1GQkYrRkY1RjBE0UY10UW=REI1Q0Q2QUEYqKNERDA5NjZBMkRBNUU5RUIzMjZGMkI2MzYxNzg2NTJEMTVBMz1GQzdCQTU0QjC2RER=JTRFRENDRkYxNUMORTY1NT1GNzY1Rj1GNDREMT1FQjgxNjdGQ0E0E0EMxRkRFOTdFMONCNTHCNjhGMka=RTU1MzNCOTQ2NzZFOUwRUU3QjJENDU1Mz1BRjZBOT1ENkExRDRFMOM3NTJERkJEJ1GQjZFMkFEMzd=JDI4REQUYMDFERDZEMkI2M0NCQkRBNEFCQkQ1NTBDQkY5RDVBURCMzU3Qzc2MkExNUVGNkZCRUJFNDJ=MZB0U15NzM1NDRERT1ENzg1QkYxOURGNUEXNzVGVQVBUE1qj33NUNCQTcxNzY4QjY5NEFBUNj1GOTH=RDc5MzPDNzBERkFDRtQ1qjE0RERDQZGNkRBNONCNkFBQkJCmKI0NUVEMTK3NzJEMzK0ODZGMUQ2NkT=NUQ5QUFFNjEzQ0YwNjY5RUNCNOM5RUNBRkVGNjI2Rjc1Qz1CQjVENENEQzBEOEEwRjM3QTU3RjZGNUE=MUQONUI1NzM2M0VEQkMyQUYxMOY3NkUxNOU2RDI3MURGQkNDNkI4QUIxQUJFMkNBNURFRURDQTA4M0a=2UI5NUYxRDZGMEI3RTY1RUQzQT1DQ0I3NkY0QTVGM0ZDMzZCNzg10DU1RDEMxQjdBmzFBMjhENjczNON=RDVDQjYwRTVFMQRTzjk3MTkzQUFEME15RkJGRTFGOUYwQjQ4MkVGNk1JDMzU4NjdFRUQxNOQ1RT1BODM=NOI1XNEZFRTYzOUY1RjZDMjczRTFRFDBMkFFNTdDMkMREZDNUZBN015NENCQjNENziwMk1JGMEI3QzY=NDVDQOM50DM5MUUQjY5NzdBNUJEMUNDQTC0NzM4Qk1JDMzA2NkM4QjdGMjU2QTU1Qzc0NORBOUM2QTn=JEM1Q0QzNkRfNOIyQzI4M0FEREFGMzCzODY2QUYwQTNEQ0YwNz1BRTZGMzdDNkQwOTQxMTAxNkEYnjZ=NEE3RjM2RkVFRDQjU3NjQ2NzNBOTdBREVEQjgXNEY5MkQ3Qj1FRkI1MkU2RQZREYzNDBDOEI4Rdf=KLBFRFL3Q3YzQTTZQRTzQ31CON3R0R0NDNLY4MTMCR1WFR1RFRNTRDNzCRDA4NUIZRMNBRQ111NONFRMTN=

运行脚本得到 flag

```
C:\WINDOWS\system32\cmd.exe
Dozerctf {itis_e4sy_4U2_anal[
1
Dozerctf {itis_e4sy_4U2_analy
1
Dozerctf {itis_e4sy_4U2_analy[
3
Dozerctf {itis_e4sy_4U2_analy
0
Dozerctf {itis_e4sy_4U2_analy[
3
Dozerctf {itis_e4sy_4U2_analys
1
Dozerctf {itis_e4sy_4U2_analys[
2
Dozerctf {itis_e4sy_4U2_analys[
1
Dozerctf {itis_e4sy_4U2_analys[
1
Dozerctf {itis_e4sy_4U2_analyse
1
Dozerctf {itis_e4sy_4U2_analyse[
3
Dozerctf {itis_e4sy_4U2_analyse
3
Dozerctf {itis_e4sy_4U2_analyse[
1
Dozerctf {itis_e4sy_4U2_analyse}
C:\Users\lenovo\Desktop>
```

代码

```
def get_base64_diff_value(s1, s2):

    base64chars = 'ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789+/'

    res = 0

    for i in xrange(len(s2)):

        if s1[i] != s2[i]:

            return abs(base64chars.index(s1[i]) - base64chars.index(s2[i]))

    return res


def solve_stego():

    with open('flag.txt', 'rb') as f:

        file_lines = f.readlines()

        bin_str = ''

        for line in file_lines:

            steg_line = line.replace('\n', '')

            norm_line = line.replace('\n',

            '').decode('base64').encode('base64').replace('\n', '')

            diff = get_base64_diff_value(steg_line, norm_line)
```



```
print diff

pads_num = steg_line.count('=')

if diff:

    bin_str += bin(diff)[2:].zfill(pads_num * 2)

else:

    bin_str += '0' * pads_num * 2

print goflag(bin_str)
```

```
def goflag(bin_str):

    res_str = ''

    for i in xrange(0, len(bin_str), 8):

        res_str += chr(int(bin_str[i:i + 8], 2))

    return res_str
```

```
if __name__ == '__main__':

    solve_stego()
```

flag: **Dozerctf {itis_e4sy_4U2_analyse}**