




CTF中的无线电以及一些取证题目

原创

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订阅专栏

前言

好久没发博客了，我的GitHub搭建的博客主题改好了，也就不改了，以后慢慢转到我的个人博客上面了，CSDN很少发了。可能会不定时发一些。

之前打的比赛，看了眼还有附件，于是就找一下wp并复现了一遍。

这个比赛我记得当时好像就web签到成功了，然后就没有然后了。

无线电

roarCTF

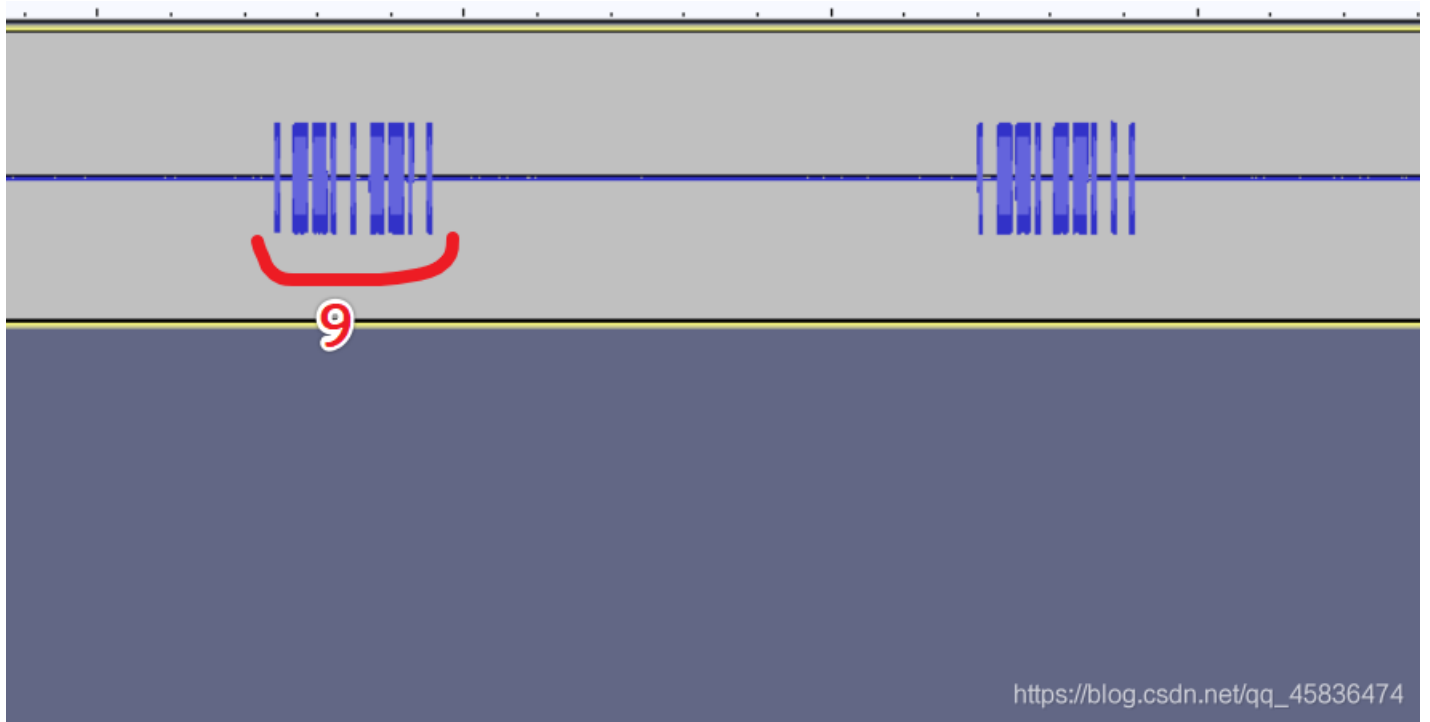
无线电的知识点——<https://md.byr.moe/s/Bk6tsb2O8>

Hi_433MHz

附件给的是扩展名为s8的文件，它是音频的原始数据。所以在给audacity中导入时，需要选择导入原始数据



打开在中间可以看到有数据模块，放大看是这样的。而且它每个部分有9个，不符合摩斯密码的规律(尝试转一下，转不出来)。



转换成01，细的为0，粗的为1。

```
01100110 01101100 01100001 01100111 01111011 00110010 00110101 01100011 00110010 00110001 01100010 00110000 0110  
0100 00101101 00110110 01100001 00110001 00110001 00101101 00110100 00110011 00110001 00110010 00101101 00111001  
00110111 00110001 01100010 00101101 00110100 00110010 00111000 01100100 00110000 00110001 01100011 01100100 011  
00011 00110101 00110011 00110100 01111101
```

将其转换为10进制数字，然后转成ASCII码就是flag

一个简单的Python脚本，进行转换

```
#!/usr/bin/python
# -*- coding: utf-8 -*-
# author: m0re
# blog: https://m0re.top
test = ['01100110', '01101100', '01100001', '01100111', '01111011', '00110010', '00110101', '01100011', '00110010', '00110001', '01100010', '00110000', '01100100', '00101101', '00110110', '01100001', '00110001', '00110001', '00101101', '00110100', '00110011', '00110001', '00110010', '00101101', '00111001', '00110111', '00110001', '01100010', '00101101', '00110100', '00110010', '00111000', '01100100', '00110000', '00110001', '01100011', '01100100', '01100011', '00110101', '00110011', '00110100', '01111101']
for number in test:
    print(int(number, 2))
```

Encode Decode Encrypt Decrypt Binary About Others

Source Replace

102, 108, 97, 103, 123, 50, 53, 99, 50, 49, 98, 48, 100, 45, 54, 97, 49, 49, 45, 52, 51, 49, 50, 45, 98, 45, 52, 50, 56, 100, 48, 49, 99, 100, 99, 53, 51, 52, 125

Result Replace

flag{25c21b0d-6a11-4312-971b-428d01cdc534}

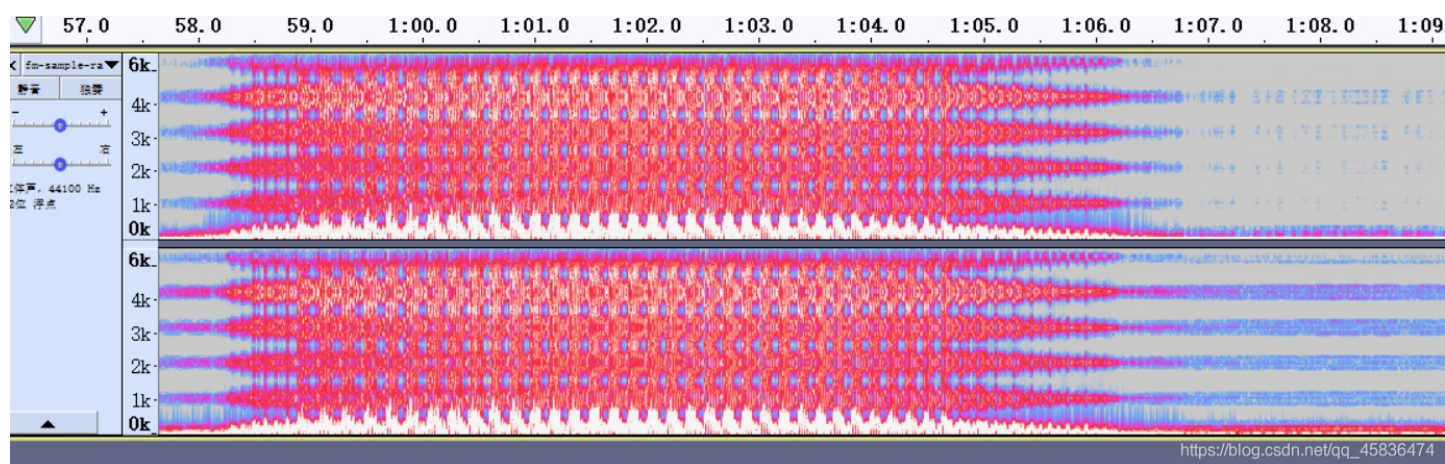
https://blog.csdn.net/qq_45836474

FM

这个题目是根据此篇博客进行复现。 <https://www.r00team.cc/writeup/2020-roarctf.html>



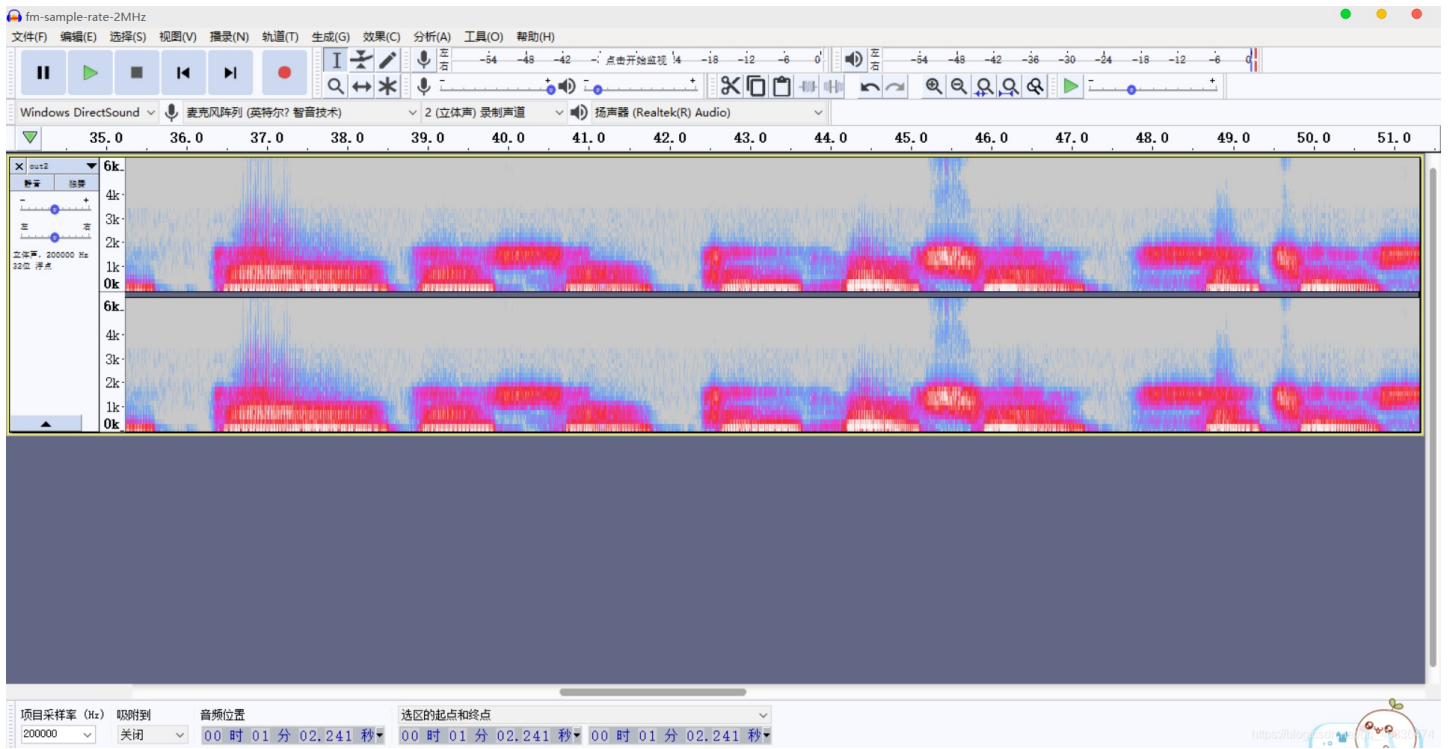
做频谱图查看，



使用脚本进行处理，这里贴一下大师傅的脚本

```
import numpy as np
y = np.fromfile('fm-sample-rate-2MHz.iq', dtype = np.complex64)
re1 = y.real[:-1]
re2 = y.real[1:]
im1 = y.imag[:-1]
im2 = y.imag[1:]
y_demod = im2 * re1 - im1 * re2
y_demod = y_demod / np.max(np.abs(y_demod))
y_demod.tofile('out2.bin')
```

再次导入，数据格式为单通道32位浮点数，采样率2MHz。作频谱图



进行降采样，将上述信号的采样率降低10倍（200kHz），转换为可以处理和收听的音频信号

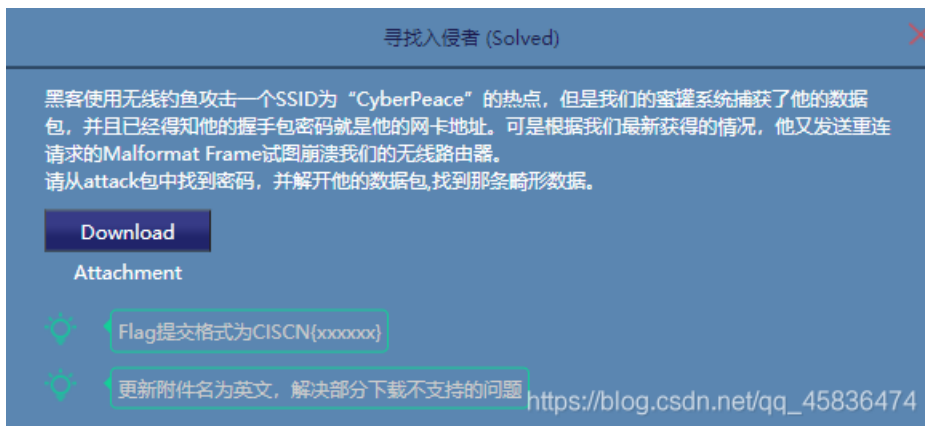
```
import numpy as np
import scipy.signal
y = np.fromfile('out2.bin', dtype = np.float32)
y_dec = scipy.signal.decimate(y, 10, ftype = 'fir')
y_dec.tofile('out2-dec.bin')
```

导入，按照原格式导入即可听到正常的音频。读的flag内容。

`flag{82c83416-dadc-4947-80df-b84852b8f35d}`

2018ciscn-misc-寻找入侵者

这个题目是在查找资料过程中，发现的一个不了解的知识。所以就也进行复现一下，了解一下这个知识。原文地址——<https://www.anquanke.com/post/id/162546>



打开wireshark，导入该数据包，可以看到很多的数据，wireshark中无线帧的类型和过滤规则对照表

帧类型

过滤器语法

Management frame	wlan.fc.type == 0
Control frame	wlan.fc.type == 1
Data frame	wlan.fc.type == 2
Association request	wlan.fc.type_subtype == 0x00
Association response	wlan.fc.type_subtype == 0x01
Reassociation request	wlan.fc.type_subtype == 0x02
Reassociation response	wlan.fc.type_subtype == 0x03
Probe request	wlan.fc.type_subtype == 0x04
Probe response	wlan.fc.type_subtype == 0x05
Beacon	wlan.fc.type_subtype == 0x08
Disassociate	wlan.fc.type_subtype == 0x0A
Authentication	wlan.fc.type_subtype == 0x0B
Deauthentication	wlan.fc.type_subtype == 0x0C
Action frame	wlan.fc.type_subtype == 0x0D
Block ACK requests	wlan.fc.type_subtype == 0x18
Block ACK	wlan.fc.type_subtype == 0x19
Power save poll	wlan.fc.type_subtype == 0x1A
Request to send	wlan.fc.type_subtype == 0x1B
Clear to send	wlan.fc.type_subtype == 0x1C
ACK	wlan.fc.type_subtype == 0x1D
Contention free period end	wlan.fc.type_subtype == 0x1E
NULL data	wlan.fc.type_subtype == 0x24
QoS data	wlan.fc.type_subtype == 0x28
Null QoS data	wlan.fc.type_subtype == 0x2C

题目描述：“黑客使用无线钓鱼攻击一个SSID为‘CyberPeace’的热点”，我们可以先过滤SSID名为CyberPeace的Beacon的信标分组(一般通过Beacon就可以分析出AP的基本信息)，过滤语句 `wlan.fc.type_subtype == 0x0008&&wlan.ssid==CyberPeace`
 详情：Beacon的说明如下

序号	SubType	说明
1	1000	Beacon, STA接受AP信标帧, 感知到AP, 获取SSID及AP参数
2	0100	STA主动发送Probe探测请求
3	0101	AP应答STA Prob Response
4	1011	STA发送Authentication请求认证
5		AP应答Authentication请求, 指示STA认证成功或失败
6	0000	STA发送Association请求
7	0001	AP应答Association Response

关于 802.11帧格式 —<https://www.cnblogs.com/shwang/p/12162692.html>

这篇文章写得比较详细，比较容易懂。

看时间戳，普通的数据包的时间戳是

No.	Time	Source	Destination	Protocol	Length	Info
1289	2.379307930	Tp-LinkT_17:7c:b4	Broadcast	802.11	248	Beac
1316	2.434319232	Tp-LinkT_c1:c7:3d	Broadcast	802.11	232	Beac
1336	2.475020091	Tp-LinkT_c1:c8:ea	Broadcast	802.11	232	Beac
1353	2.486502346	HuaweiTe_9b:29:3c	Broadcast	802.11	345	Beac
1372	2.502546308	Tp-LinkT_17:7c:b4	Broadcast	802.11	248	Beac
1406	2.594761809	HuaweiTe_9b:29:3c	Broadcast	802.11	345	Beac
1407	2.596876152	Tp-LinkT_17:7c:b4	Broadcast	802.11	248	Beac
1434	2.641544372	Tp-LinkT_c1:c7:3d	Broadcast	802.11	232	Beac
1447	2.689036372	Tp-LinkT_17:7c:b4	Broadcast	802.11	248	Beac
1449	2.695856824	HuaweiTe_9b:29:3c	Broadcast	802.11	345	Beac
1495	2.766507207	Tp-LinkT_c1:c7:3d	Broadcast	802.11	232	Beac
1501	2.798031688	Tp-LinkT_17:7c:b4	Broadcast	802.11	248	Beac
1536	2.870874430	Tp-LinkT_c1:c7:3d	Broadcast	802.11	232	Beac
1539	2.885884127	Tp-LinkT_17:7c:b4	Broadcast	802.11	248	Beac
1548	2.896139515	HuaweiTe_9b:29:3c	Broadcast	802.11	345	Beac
1576	2.947265188	Tp-LinkT_c1:c7:3d	Broadcast	802.11	232	Beac
1588	2.987042921	Tp-LinkT_17:7c:b4	Broadcast	802.11	248	Beac
1589	2.989012020	Tp-LinkT_c1:c8:ea	Broadcast	802.11	232	Beac

IEEE 802.11 Wireless Management

- Fixed parameters (12 bytes)
 - Timestamp: 5412562832
 - Beacon Interval: 0.102400 [Seconds]
- Capabilities Information: 0x0411
 - ...1 = ESS capabilities: Transmitter is an AP
 - ...0 = IBSS status: Transmitter belongs to a BSS
 - ...0 = CFP participation capabilities: No point coordinat
 - ...1 = Privacy: AP/STA can support WEP
 - ...0 = Short Preamble: Not Allowed

而看到不同的时间戳是00

就是到2153条数据时，是00，看到的mac地址是(88:25:93:c1:c8:eb)

..0. = More Data: No data buffered
..0.. = Protected flag: Data is not protected
0... = Order flag: Not strictly ordered
.000 0000 0000 0000 = Duration: 0 microseconds
Receiver address: Broadcast (ff:ff:ff:ff:ff:ff)
Destination address: Broadcast (ff:ff:ff:ff:ff:ff)
Transmitter address: Tp-LinkT_c1:c8:eb (88:25:93:c1:c8:eb)
Source address: Tp-LinkT_c1:c8:eb (88:25:93:c1:c8:eb)
BSS Id: Tp-LinkT_c1:c8:eb (88:25:93:c1:c8:eb)
..... 0000 = Fragment number: 0

可以筛选一下全部时间戳为00的数据。

过滤语句是 wlan.fc.type_subtype == 0x008&&wlan.ssid==CyberPeace&&wlan.fixed.timestamp == 0x00

时间戳全部都是00，而且Mac地址是一样的。

No.	Time	Source	Destination	Protocol	Length	Info
2153	4.151217552	Tp-LinkT_c1:c8:eb	Broadcast	802.11	85	Beacon frame, SN=1, FN=0, Flags=....., B.
2192	4.236124278	Tp-LinkT_c1:c8:eb	Broadcast	802.11	85	Beacon frame, SN=2, FN=0, Flags=....., B.
2237	4.323913779	Tp-LinkT_c1:c8:eb	Broadcast	802.11	85	Beacon frame, SN=3, FN=0, Flags=....., B.
2306	4.438813082	Tp-LinkT_c1:c8:eb	Broadcast	802.11	85	Beacon frame, SN=4, FN=0, Flags=....., B.
2350	4.527984720	Tp-LinkT_c1:c8:eb	Broadcast	802.11	85	Beacon frame, SN=5, FN=0, Flags=....., B.
2421	4.655931195	Tp-LinkT_c1:c8:eb	Broadcast	802.11	85	Beacon frame, SN=6, FN=0, Flags=....., B.
2509	4.838218240	Tp-LinkT_c1:c8:eb	Broadcast	802.11	85	Beacon frame, SN=8, FN=0, Flags=....., B.
2556	4.920224833	Tp-LinkT_c1:c8:eb	Broadcast	802.11	85	Beacon frame, SN=9, FN=0, Flags=....., B.
2675	5.124718275	Tp-LinkT_c1:c8:eb	Broadcast	802.11	85	Beacon frame, SN=11, FN=0, Flags=....., l
2801	5.333624017	Tp-LinkT_c1:c8:eb	Broadcast	802.11	85	Beacon frame, SN=13, FN=0, Flags=....., l
2856	5.421147795	Tp-LinkT_c1:c8:eb	Broadcast	802.11	85	Beacon frame, SN=14, FN=0, Flags=....., l
2987	5.601138357	Tp-LinkT_c1:c8:eb	Broadcast	802.11	85	Beacon frame, SN=15, FN=0, Flags=....., l
3006	5.658259768	Tp-LinkT_c1:c8:eb	Broadcast	802.11	85	Beacon frame, SN=16, FN=0, Flags=....., l
25055	51.831035143	Tp-LinkT_c1:c8:eb	Broadcast	802.11	85	Beacon frame, SN=0, FN=0, Flags=....., B.
25083	51.930932608	Tp-LinkT_c1:c8:eb	Broadcast	802.11	85	Beacon frame, SN=1, FN=0, Flags=....., B.
25097	52.029298627	Tp-LinkT_c1:c8:eb	Broadcast	802.11	85	Beacon frame, SN=2, FN=0, Flags=....., B.

```

25118 52.129634919 Tp-LinkT_c1:c8:eb Broadcast 802.11 85 Beacon frame, SN=3, FN=0, Flags=....., B
25215 52.244937605 Tp-LinkT_c1:c8:eb Broadcast 802.11 85 Beacon frame, SN=4, FN=0, Flags=....., B
...0 .... = PWR MGT: STA will stay up
..0. .... = More Data: No data buffered
.0.. .... = Protected flag: Data is not protected
0... .... = Order flag: Not strictly ordered
.000 0000 0000 0000 = Duration: 0 microseconds
Receiver address: Broadcast (ff:ff:ff:ff:ff:ff)
Destination address: Broadcast (ff:ff:ff:ff:ff:ff)
Transmitter address: Tp-LinkT_c1:c8:eb (88:25:93:c1:c8:eb)
Source address: Tp-LinkT_c1:c8:eb (88:25:93:c1:c8:eb)
BSS Id: Tp-LinkT_c1:c8:eb (88:25:93:c1:c8:eb)
0000 00 00 12 00 2e 48 00 00 00 02 85 09 a0 00 ed 01 .....H.....
0010 00 00 80 00 00 00 ff ff ff ff ff ff 88 25 93 c1 .....%...
0020 c8 eb 88 25 93 c1 c8 eb 10 00 00 00 00 00 00 00 ..%.
0030 00 00 64 00 01 04 00 0a 43 79 62 65 72 50 65 61 ..d.....CyberPea
0040 63 65 01 04 02 04 0b 16 03 01 06 32 08 0c 12 18 ce.....2....
0050 24 30 48 60 6c $0H`l

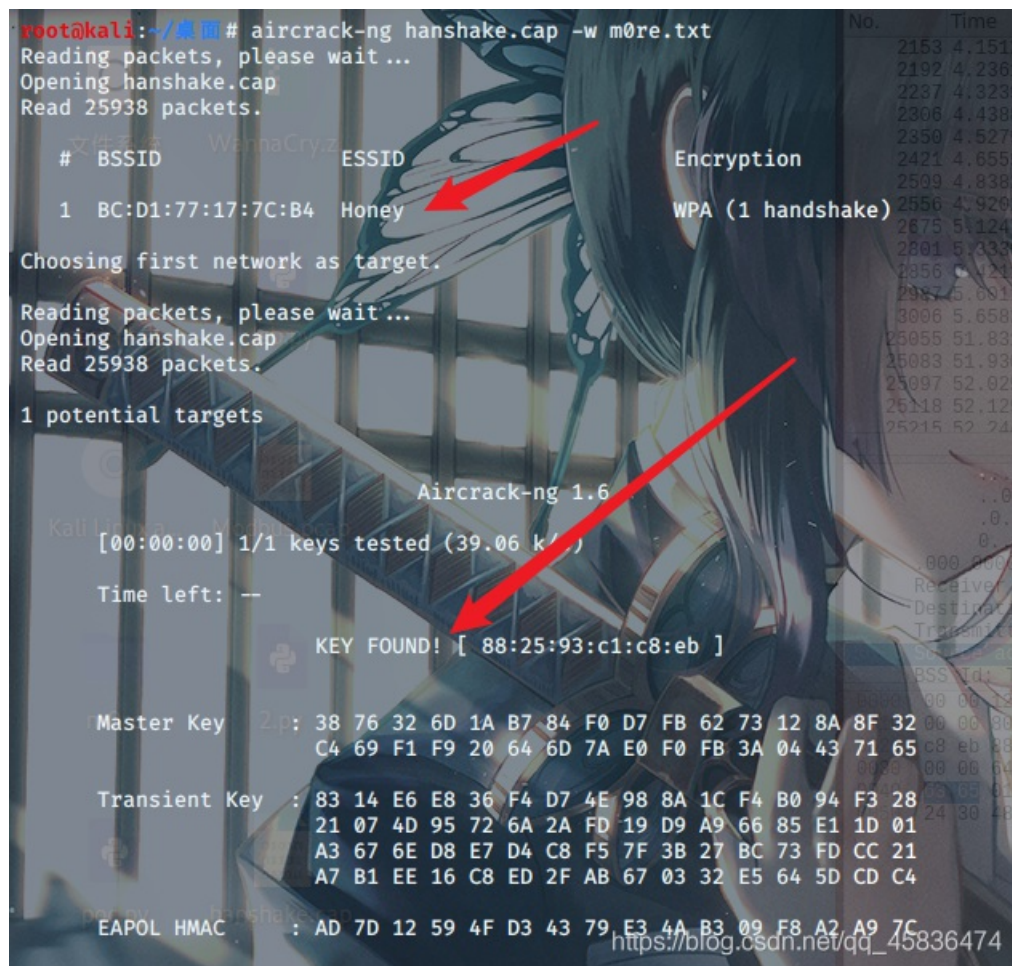
```

https://blog.csdn.net/qq_45836474

题目：握手包密码就是他的网卡地址

将密码写入TXT文件中，然后通过利用aircrack-ng工具(kali自带)进行验证密码的正确性。

```
aircrack-ng handshake.cap -w m0re.txt
```



然后就是对cap包进行解密。

第一种方法

利用wireshark官方在线网站——<https://www.wireshark.org/tools/wpa-psk.html>输入密码和SSID就可以得到一串PSK

WPA PSK (原始密钥) 生成器

Wireshark WPA预共享密钥生成器提供了一种简单的方法，可以将WPA密码和SSID转换为用于密钥派生的256位预共享（“原始”）密钥。

说明:

在下面输入或粘贴您的WPA密码和SSID。**稍等片刻**。PSK将由您的浏览器计算。Javascript以其惊人的加密速度而闻名。**没有**这些信息将通过网络发送。如果您不相信我们，请与Wireshark进行跟踪。

密码短语 88:25:93:c1:c8:eb

SSID Honey

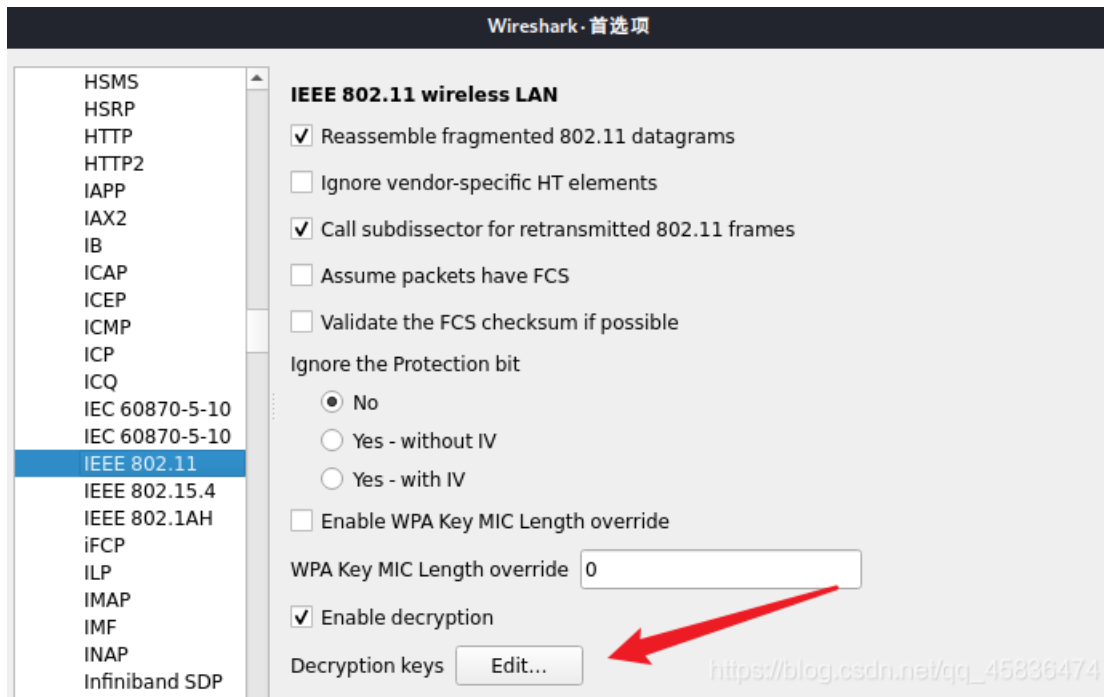
PSK 3876326d1ab784f0d7fb6273128a8f32c469f1f920646d7ae0f0fb3a04437165

产生PSK

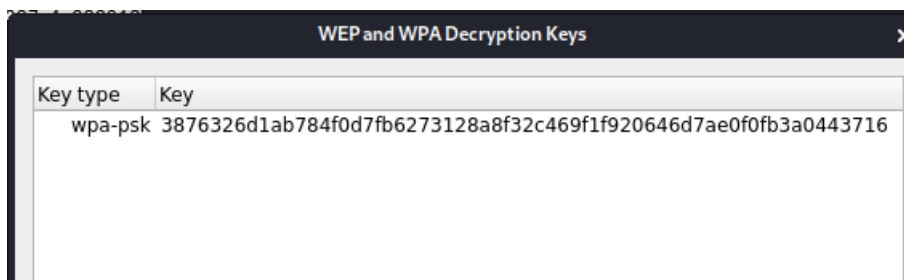
https://blog.csdn.net/qq_45836474

把 `hanshake.cap` 在wireshark中打开。

在编辑——首选项——Protocols——IEEE 802.11



然后添加key-type为wpa-psk，添加key为刚才生成的PSK



点击OK就解密成功了。

第二种方法

使用airdecap-ng工具解密

#命令

```
airdecap-ng -p 88:25:93:c1:c8:eb -e Honey hanshake.cap
```

```

文件(F) 动作(A) 编辑(E) 查看(V) 帮助(H)
root@kali:~/桌面 # airdecap-ng -p 88:25:93:c1:c8:eb -e Honey handshake.cap
Total number of stations seen          7
Total number of packets read          25938
Total number of WEP data packets       0
Total number of WPA data packets      7069
Number of plaintext data packets      0
Number of decrypted WEP packets       0
Number of corrupted WEP packets       0
Number of decrypted WPA packets      7041
Number of bad TKIP (WPA) packets      0
Number of bad CCMP (WPA) packets     0
root@kali:~/桌面 #

```

https://blog.csdn.net/qq_45836474

然后会生成解密后的流量包
再次打开就会发现跟之前不一样了。

应用显示过滤器 ... <Ctrl-/>

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	::	ff02::1:ffc2:d5ff	ICMPv6	78	Neighbor Solicitation for fe80::b60b:44ff:fec...
2	0.016896	::	ff02::16	ICMPv6	90	Multicast Listener Report Message v2
3	0.057856	0.0.0.0	255.255.255.255	DHCP	364	DHCP Discover - Transaction ID 0x8cfe0d7a
4	0.551994	192.168.1.1	192.168.1.100	DHCP	590	DHCP Offer - Transaction ID 0x8cfe0d7a
5	0.565312	0.0.0.0	255.255.255.255	DHCP	376	DHCP Request - Transaction ID 0x8cfe0d7a
6	0.566842	192.168.1.1	192.168.1.100	DHCP	590	DHCP ACK - Transaction ID 0x8cfe0d7a
7	0.632384	::	ff02::16	ICMPv6	90	Multicast Listener Report Message v2
8	0.716864	Smartisa_c2:d5:ff	Broadcast	ARP	42	Who has 192.168.1.1? Tell 192.168.1.100
9	0.718392	Tp-LinkT_17:7c:b4	Smartisa_c2:d5:ff	ARP	42	192.168.1.1 is at bc:d1:77:17:7c:b4
10	0.721474	192.168.1.100	218.2.135.1	DNS	91	Standard query 0x4acc A connectivitycheck.sma...
11	0.739392	192.168.1.100	117.91.177.227	TCP	54	45195 → 80 [ACK] Seq=1 Ack=1 Win=343 Len=0
12	0.741440	192.168.1.100	117.91.177.227	HTTP	288	GET /generate_204 HTTP/1.1
13	0.747060	117.91.177.227	192.168.1.100	TCP	54	80 → 45195 [ACK] Seq=1 Ack=235 Win=60 Len=0
14	0.749120	192.168.1.100	117.91.177.227	TCP	54	[TCP ACKed unseen segment] 45195 → 80 [ACK] S...
15	0.926272	192.168.1.100	218.2.135.1	DNS	74	Standard query 0x41ab A www.google.com
16	0.929330	218.2.135.1	192.168.1.100	DNS	338	Standard query response 0x41ab A www.google.c...
17	0.932416	192.168.1.100	31.13.75.18	TCP	74	36740 → 443 [SYN] Seq=0 Win=65535 Len=0 MSS=1...
18	0.957502	192.168.1.100	218.2.135.1	DNS	80	Standard query 0x4ef8 A hotchat-im.iqiyi.com
19	0.960050	218.2.135.1	192.168.1.100	DNS	261	Standard query response 0x4ef8 A hotchat-im i...

▶ Frame 14: 78 bytes on wire (624 bits), 78 bytes captured (624 bits)
 ▶ Ethernet II, Src: Smartisa_c2:d5:ff (b4:0b:44:c2:d5:ff), Dst: IPv6mcast_ff:c2:d5:ff (33:33:ff:c2:d5:ff)
 ▶ Internet Protocol Version 6, Src: ::, Dst: ff02::1:ffc2:d5ff
 ▶ Internet Control Message Protocol v6

https://blog.csdn.net/qq_45836474

有很多协议的数据，所以首先查看了一下http的。尝试导出http数据流。
导出数据收集信息。
再执行一下过滤语句，将GET请求方式筛选出来。

```
http.request.method==GET
```

The screenshot shows a network traffic analysis tool interface. At the top, there is a search bar with the filter `http.request.method==GET`. Below it is a table of network traffic. The table has columns for No., Time, Source, Destination, Protocol, Length, and Info. A red arrow points to a specific entry in the table: No. 659, Time 10.420918, Source 192.168.1.100, Destination 150.242.125.64, Protocol HTTP, Length 567, Info GET /yTRFwRV17z/key.rar HTTP/1.1. Below the table, the details for this frame are expanded, showing it is a GET request for a userRpm/StatusRpm.htm file.

No.	Time	Source	Destination	Protocol	Length	Info
447	4.710192	192.168.1.100	192.168.1.1	HTTP	520	GET /images/empty.gif HTTP/1.1
467	4.780336	192.168.1.100	192.168.1.1	HTTP	515	GET /images/pw.gif HTTP/1.1
541	5.244720	192.168.1.100	36.110.171.40	HTTP	838	GET /su?type=addrbar&key=192.168.1.1&ie=UTF-8...
547	6.000498	192.168.1.100	101.226.211.232	HTTP	276	GET /cw.html HTTP/1.1
559	7.800308	192.168.1.100	36.110.171.40	HTTP	862	GET /su?type=addrbar&key=wiattack.net%2FyTRFw...
566	9.982070	192.168.1.100	192.168.1.1	HTTP	601	GET /userRpm/StatusRpm.htm HTTP/1.1
611	10.051190	192.168.1.100	192.168.1.1	HTTP	504	GET /dynaform/css_main.css HTTP/1.1
625	10.057334	192.168.1.100	192.168.1.1	HTTP	486	GET /dynaform/common.js HTTP/1.1
626	10.057846	192.168.1.100	192.168.1.1	HTTP	486	GET /dynaform/custom.js HTTP/1.1
627	10.057846	192.168.1.100	192.168.1.1	HTTP	520	GET /images/arc.gif HTTP/1.1
628	10.058358	192.168.1.100	192.168.1.1	HTTP	520	GET /images/empty.gif HTTP/1.1
659	10.420918	192.168.1.100	150.242.125.64	HTTP	567	GET /yTRFwRV17z/key.rar HTTP/1.1
2796	15.190972	192.168.1.100	192.168.1.1	HTTP	601	[TCP ACKed unseen segment] GET /userRpm/Statu...
2833	15.240638	192.168.1.100	192.168.1.1	HTTP	504	[TCP ACKed unseen segment] GET /dynaform/css_...
2838	15.246268	192.168.1.100	192.168.1.1	HTTP	486	GET /dynaform/custom.js HTTP/1.1
2842	15.247804	192.168.1.100	192.168.1.1	HTTP	518	GET /images/arc.gif HTTP/1.1
2843	15.248318	192.168.1.100	192.168.1.1	HTTP	520	GET /images/empty.gif HTTP/1.1
2884	21.237050	192.168.1.100	192.168.1.1	HTTP	601	[TCP ACKed unseen segment] GET /userRpm/Statu...
2922	21.294906	192.168.1.100	192.168.1.1	HTTP	504	GET /dynaform/css_main.css HTTP/1.1

Frame 659: 567 bytes on wire (4536 bits), 567 bytes captured (4536 bits)
 ▶ Ethernet II, Src: Smartisa_c2:d5:ff (b4:0b:44:c2:d5:ff), Dst: Tp-LinkT_17:7c:b4 (bc:d1:77:17:7c:b4)
 ▶ Internet Protocol Version 4, Src: 192.168.1.100, Dst: 150.242.125.64
 ▶ Transmission Control Protocol, Src Port: 38012, Dst Port: 80, Seq: 1, Ack: 1, Len: 501
 ▶ Hypertext Transfer Protocol

https://blog.csdn.net/qq_45836474

很奇怪的是，导出http对象的时候，没有发现这个key压缩包，但是在筛选get请求方式的时候，发现了这个压缩包。

正常流程是访问网址，下载压缩包。

题目描述：他又发送重连请求的Malformat Frame试图崩溃我们的无线路由器

故攻击者发送了大量请求。所以筛选一下发送者的Mac地址发送的请求。

过滤语句：`wlan.addr==88:25:93:c1:c8:eb` 或者 `wlan.sa == 88:25:93:c1:c8:eb`

然后emmmm，不是很懂最后这个

可以看看这篇博客

<https://www.jianshu.com/p/04ef45f4b243>

最后畸形数据 `Z9DY20jZiYjzY5vs0UQZVUg86eMY1NMzH`

flag就是这个。

看了其他的wp，是strings命令解出来的

```
strings key.pcap
...
...
CyberPeace
0H`l-
ADSL Modem/Router
CyberPeace
0H`l-
!Z9DY20jZiYjzY5vs0UQZVUg86eMY1NMzH
```

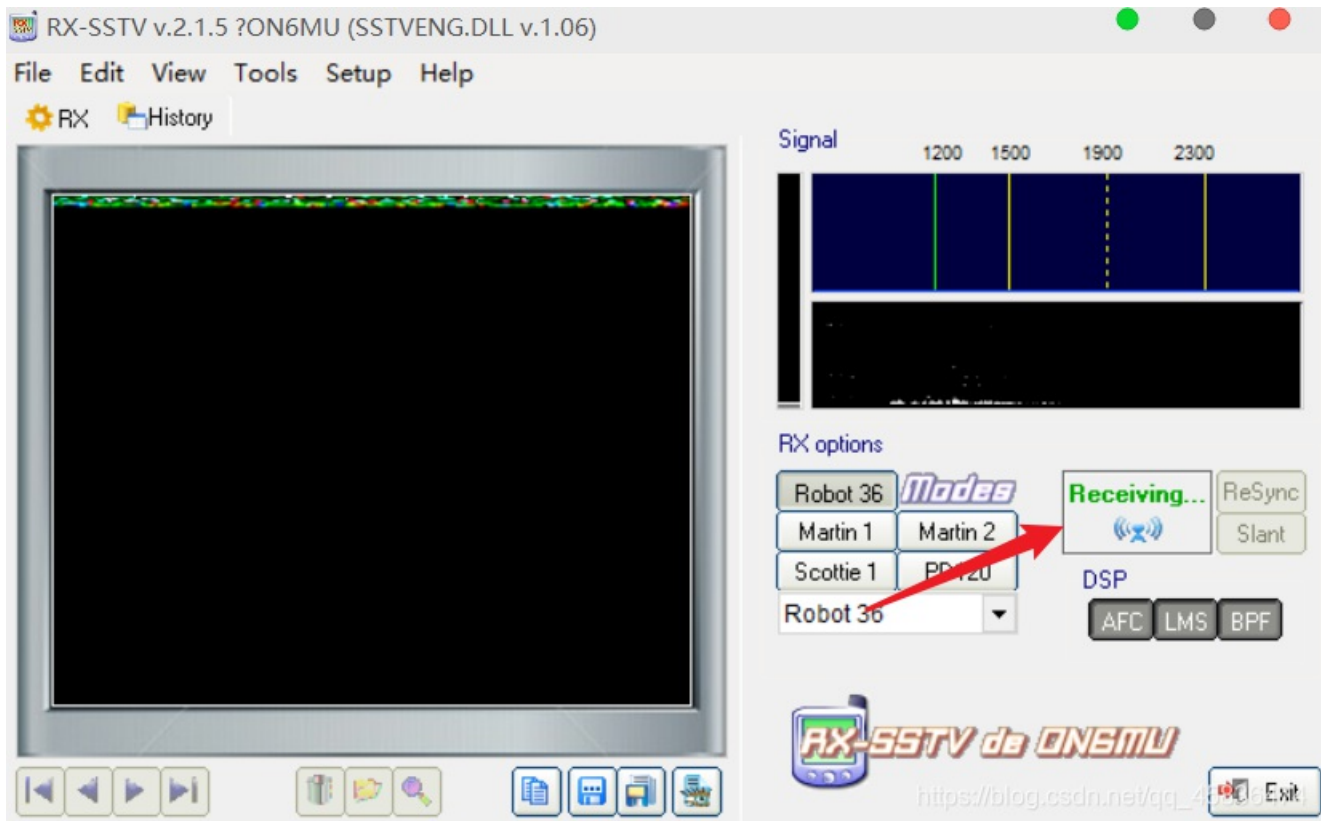
也能得到最后这个答案。

未知信号

题目来源——[点击传送ctfshow](#)

下载下来直接使用SSTV软件打开就可以了。软件安装包链接——<https://m0re.lanzoux.com/ibgwKk96pyj>

简单介绍一下使用方法吧。



这边是接收和停止。

使用的时候先点接收，然后直接放音频，由于音频太长，设备不足，我没有继续进行(主要是5分钟的无线电波听着贼难受)

参考——<https://wp.ctf.show/d/101>

取证

以下题目来源——CTFhub

文件恢复

文件恢复 X

所需金币: 50 题目状态: **已解出** 解题奖励: 金币:50 经验:10

小明以为文件删除了别人就看不到了。too young too simple呀

[开启题目](#) ¥ 50

Flag{.....} [提交Flag](#) [WriteUp](#)

ohhhh, 这个题还没有WriteUp, 骚年要不要来一份? [點我提交](#)

emmmm 工具一把梭。
一条命令解决

```
extundelete DR --restore-all
```

恢复出来的文件有Flag.txt

磁盘恢复

磁盘恢复 X

所需金币: 50 题目状态: **已解出** 解题奖励: 金币:50 经验:10

将所给的磁盘信息进行恢复获取机密信息, flag格式为FLAG-xxx

[开启题目](#) ¥ 50

Flag{.....} [提交Flag](#) [WriteUp](#)

ohhhh, 这个题还没有WriteUp, 骚年要不要来一份? [點我提交](#)

预期结吧

挂载到空文件夹上

```
mount 86b265d37d1fc10b721a2accae04a60d /root/桌面/m0re/
```

查看当前挂载的文件系统

```
df -lh
```

```
root@kali:~/桌面 # df -lh
文件系统 容量 已用 可用 已用% 挂载点
udev     1.9G  0    1.9G   0% /dev
tmpfs    392M  1.7M 390M   1% /run
/dev/sda1 16G  15G 336M  98% /
tmpfs    2.0G  0    2.0G   0% /dev/shm
tmpfs    5.0M  0    5.0M   0% /run/lock
tmpfs    2.0G  0    2.0G   0% /sys/fs/cgroup
tmpfs    392M  16K 392M   1% /run/user/0
/dev/sr0  2.1G  2.1G  0    100% /media/cdrom0
/dev/loop0 1.1M 192K 848K  19% /root/桌面/m0re
```

A terminal window screenshot showing the output of the 'df -lh' command. The output lists various filesystems and their usage. A red arrow points to the entry for '/dev/loop0', which shows it is mounted at '/root/桌面/m0re' and is 19% full. The background of the terminal window features a stylized anime-style character illustration.

https://blog.csdn.net/qq_45836474

当前挂载在/dev/loop0系统下。

重新挂载分区，以只读方式

```
mount -r -o remount /dev/sdb2
```

-r 表示以只读方式，注意必须设置为只读方式

验证是否设置成功

```
cd /guazai
mkdir aa
mkdir: cannot create directory `aa': Read-only file system
```

表示设置只读方式成功。

执行 debugfs

```
debugfs /dev/loop0
```

然后在debugfs提示符后面输入命令。

使用 `lsdel` 命令，查看inode。

```
Inode Owner Mode Size Blocks Time deleted
 19 0 100644 12288 12/ 12 Wed Feb 5 10:03:11 2014
 12 0 100777 16 1/ 1 Wed Feb 5 10:04:51 2014
2 deleted inodes found.
(END)
```

可以看到有两个inode，恢复文件时，不知道是哪个就挨个尝试一下。

使用 `ls -d` 查看被删除的文件。这里发现有个 `secret.txt` 文件，猜测应该就是flag所在了吧。

```
回收站 cve_2019...
 2 (12) . 2 (12) .. 11 (40) lost+found <0> (20) secret.txt
 13 (16) image 17 (944) to keep
(END)
```

使用 `dump` 命令恢复文件内容。

#使用 `dump <inode> /路径`

`dump <12> /root/桌面/m0re.txt`

然后查看文件内容。发现flag。

```
root@kali:~/桌面# cat m0re.txt
FLAG-ggmgk05096
root@kali:~/桌面#
```

非预期解(大多是这样的解法)

直接strings即可。

`strings 86b265d37d1fc10b721a2accae04a60d | grep FLAG`

又或者是直接记事本打开搜索flag字段。拿到flag。

小结

此次学习无线电的基础知识，和一些文件恢复的知识点。

嗯，总结就这样水了吧，没了。