Internetwache CTF 2016 Procrastination (Crypto 80) Writeup

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Problem

> Watching videos is fun!

Attachment: https://ctf.internetwache.org/files/crypto80.zip

Solved by 74 teams

Solution

We unpack and get a webm file. When opened, it plays one of the big hits from the 80s for 36 seconds. Let's run `mediainfo` on it, we see that it contains one video track and two audio tracks, let's extract the second audio track.

```
avconv -i song.webm -map 0:2 audio.wav
```

When playing it, we can hear phone dial noises, also known as DTMF. So we run DTMF recognition software.

```
multimon -t wav -a DTMF audio.wav
```

And we get the DTMF tones as output:

```
DTMF: 0
DTMF: 1
DTMF: 1
DTMF: 1
DTMF: 0
```

```
DTMF: 1
DTMF: 2
DTMF: 7
DTMF: 0
...snip...
DTMF: 0
DTMF: 1
DTMF: 2
DTMF: 3
```

We can observe that it seems to be 2-3 digits separated by `0`. Let's group them and remove the separating zeros:

```
111 127 173 104 122 60 116 63 123 137 127 61 124 110 137 120 110 60 116 63 123
```

Oh no, it's those pesky octal numbers again! Let's do what we did last time (code reuse FTW!).

```python
import string

f = open('dtmf.txt')
line = f.readline().replace('\n', '')
print ''.join([chr(string.atoi(x, base=8)) for x in line.split(' ')])
```

(For some reason multimon didn't get the last 3 digits, `125 = base8(})`, but it wasn't hard to figure out)

Flag: IW{DR0N3S_W1TH_PH0N3S}