

SHAMMO

24 CANOGRAPHY

and the
Lost Coders



17 teams this year!

As of Noon

Three Blind Mice

Team FDG

uhh_that_one

hammer brothers

mighty rubber ducks

Early Bedtime

Not Some Anagram

Stage Prizes:

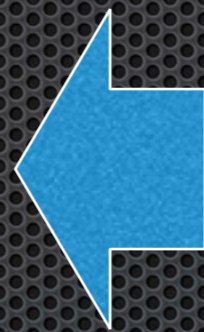
1: Three Blind Mice

2: Three Blind Mice

3: Three Blind Mice

4: Three Blind Mice

5:



*Actively
played*

*Thanks for
registering!*



Snorlax

ropguy

Peter Griffin

punkrokkers

latticenetworks

For The Girls

Gitmoneyyy

Team Shmooligans

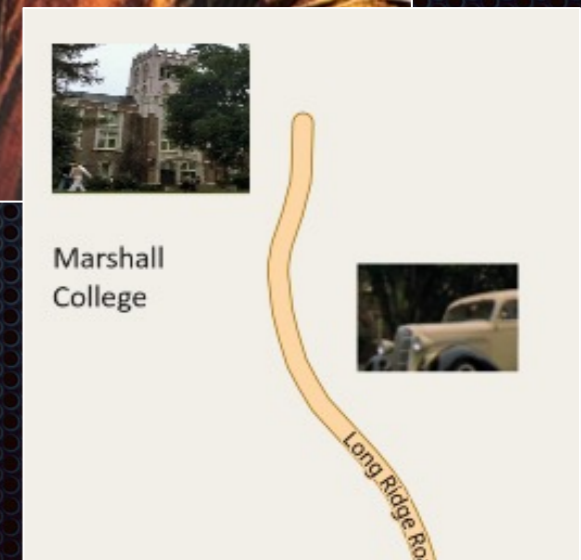
LikeTheDinosaur?

the mighty penguins

Stage 1: Marshall College

NFC tags in contest posters, then map

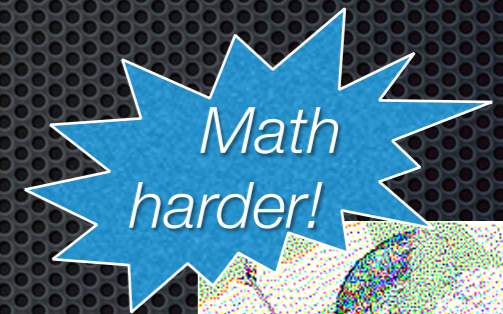
- Each contest poster has a slightly different NFC tag hidden in the corrugated plastic
- Scan each with smartphone, FlipperZero, or similar:
 - *museum.shmooganography.org:8080, and 16/19364/24522*
- Once you realize the numbers are referring to a specific tile on our server, the answer appears!



Stage 2: DOOM

Steg'd Leaflet tiles at bogus coordinates

- The earth is flat, even better it's square... who knew, lets make some invalid coordinates!



- $\text{invalidZ} = Z \% 18$, $\text{invalidXY} = XY \% 2^Z$

- Steg is image XOR (lossy)

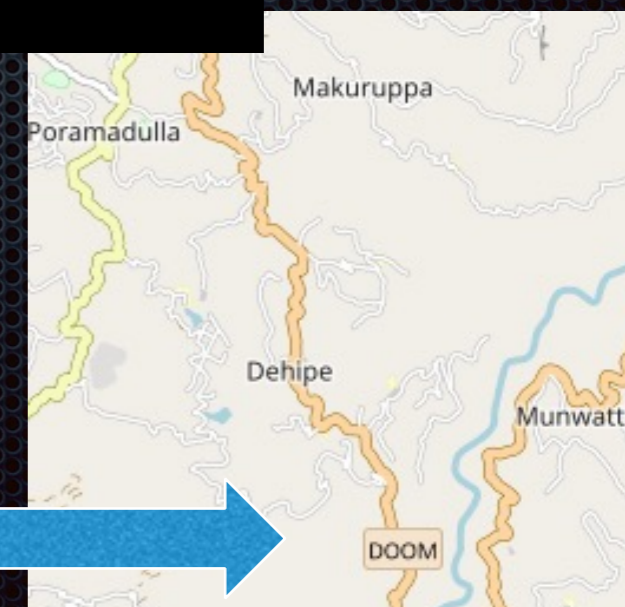
- Any Invalid XYZ returns

- At $Z=10$ Original XOR Secret

- At any other cold/warm/hot to $Z=10$

- Secret: Image with /intercept (to Stage 3)

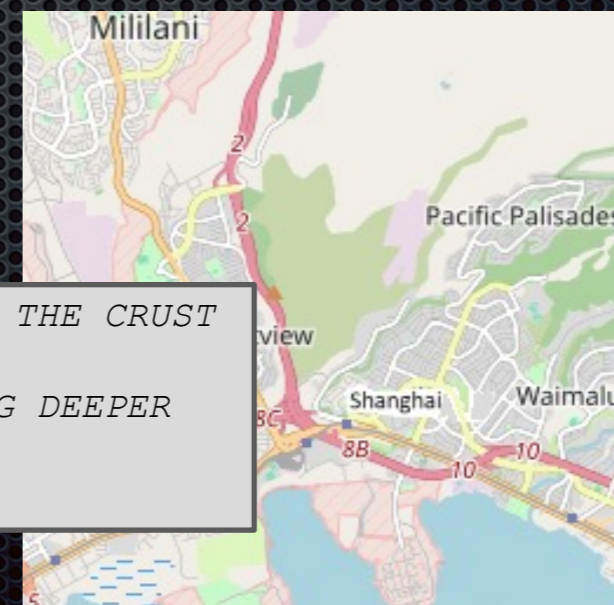
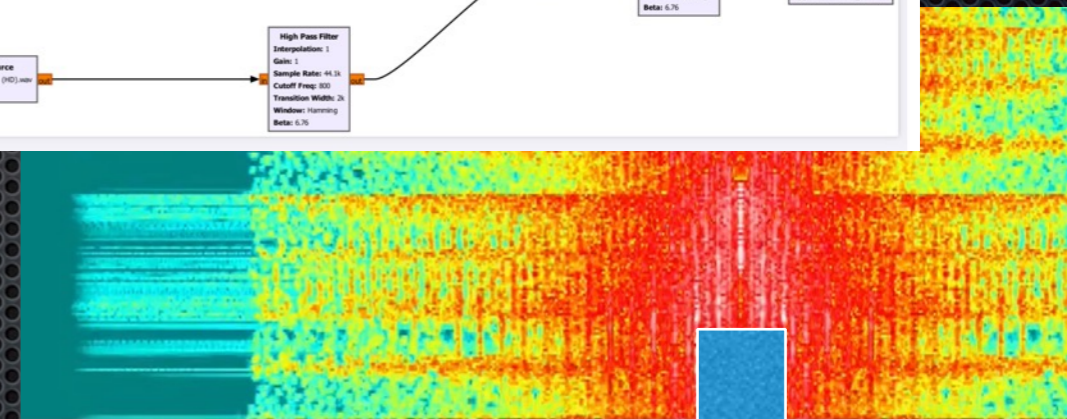
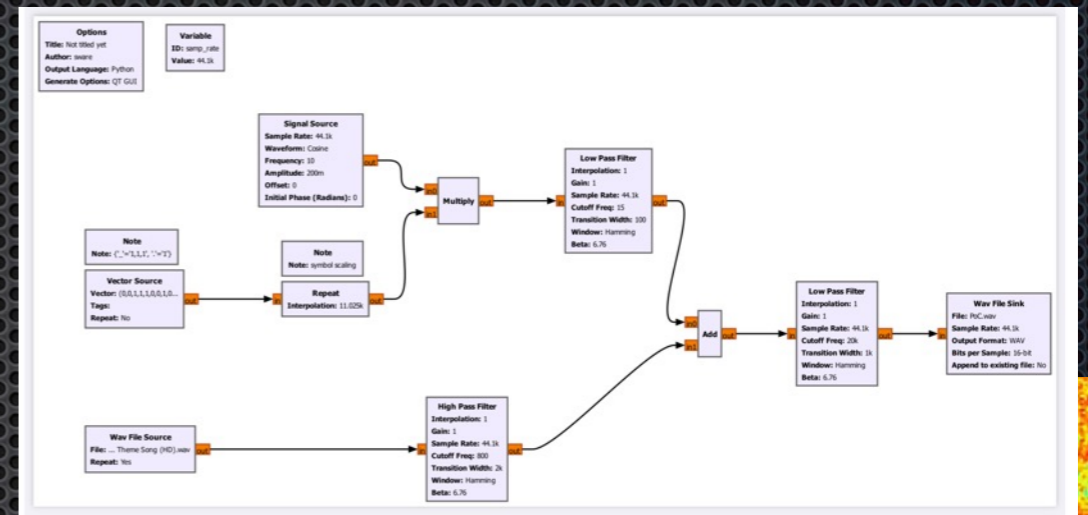
- $-5/-2258/3933$ to get DOOM at $13/5934/3933.png$



Stage 3: Shanghai

Sub-audible Morse code in audio file

- Generated using GnuRadio sequence
- Listening to Indy sound track doesn't reveal distortion, as hidden message is in low frequencies
- Could be processed visually or with a reverse GnuRadio sequence



CROSS THE GLOBE DIAMONDS ARE HIDDEN IN THE CRUST
 =
 CAREFUL TO AVOID THE TRAPS AS YOU DIG DEEPER
 =
 122501798



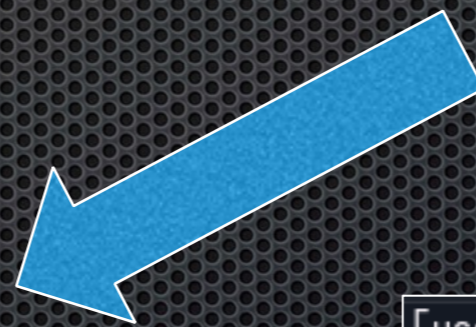
Stage 4: Refrigerator

StegHide on specific tiles/zoom

- PNG LSB Encoding at all tiles
Z=17 (thanks dhsdshdhk/stegpy)

- Secret:

*Indy enjoyed his stay around
lovely White Sands in what
Means? IndianaShmoo is
streaming live at /theater*



```
[user@pc ~]$
```

Stage 5:

Hiding in Transport Stream padding

- */theater* doesn't resolve at first, need to load *IndianaShmoo.m3u8*
- Inspect playlist, realize video starts at *out5.ts*
- Extract all *.ts files, look for 0xFFFFFFFF markers at start of padding
- Stitch together JPEG image

Forbidden

You don't have permission to access this resource.
Additionally, a 403 Forbidden error was encountered

```
IndianaShmoo.m3u8 out111.ts out123.ts out
out100.ts out112.ts out124.ts out
out101.ts out113.ts out125.ts out
out102.ts out114.ts out126.ts out
out103.ts
out104.ts
out105.ts
out106.ts
out107.ts
```

```
0000000 4047 1111 4200 25f0 0100
0000010 0100 80fc 4814 0112 4606
0000020 6553 7672 6369 3065 7731
0000030 ffff ffd8 00e0 4a10 4946
0000040 0048 0048 ff00 2ee1 450a
0000050 2a49 0800 0000 0700 1200
0000060 0100 0000 1a00 0501 0100
0000070 1b00 0501 0100 0000 6a00
0000080 0000 0000 0000 0000 0000
0000090 0000 3100
0000100 0201 1400
0000110 0000 9400
0000120 0000 ffff
0000130 00c1 0000
0000140 0048 0000
0000150 2e30 3033
0000160 8120 3a35
0000170 0001 0000
```





Code words are Indiana Jones “locations!”

Marshall College

Doom

Shanghai

Refrigerator

Many teams simply mined our Leaflet server... #smh

Very Special Thanks



LUFCO

for their generous sponsorship,
covering our expenses, materials,
shirts, and prize!

Special Thanks

- Rob Iger & George Lucas, for not suing us (yet)
- No Starch Press, for donating ebook gift certificates
- Not Just Signs, for super last-minute sign-printing
- Rob & Scott, for mind-twisting steg adventures
- OpenStreetMaps, HostGIS, Leaflet, GeoFabrik, stegpy
- Our SOs & Bosses, for permitting our annual hiatus
- Heidi & Bruce, for tolerating our endless shenanigans
 - *And all of the Shmoo staff who play and help us*
- You, for playing and providing feedback for 17 years!

shmooganography@gmail.com

Presentation will be available on
the contest website soon.

Look for a highlight reel
presentation in 2025!