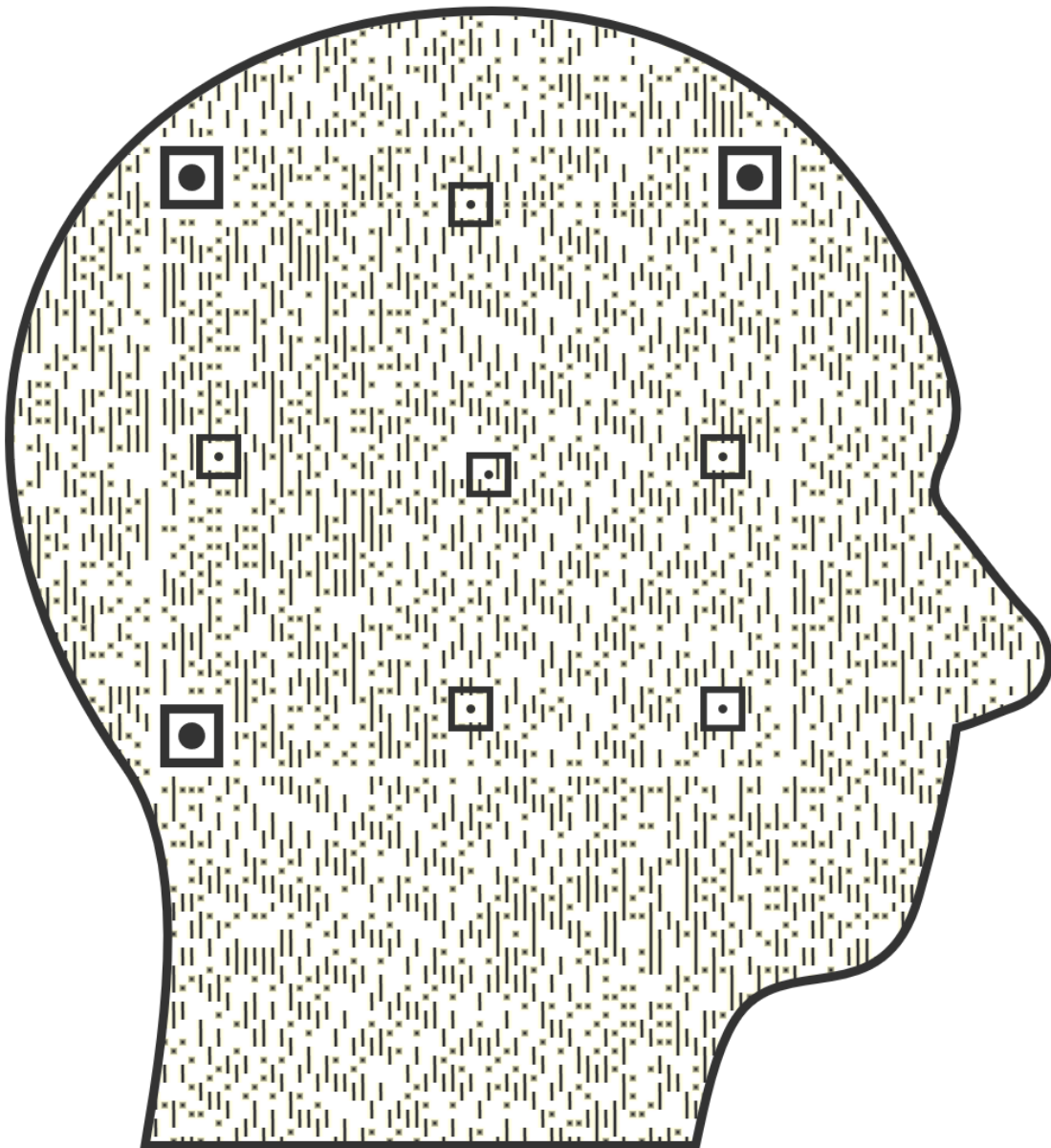




Enigma CTF Write-Up by Cyph3rRyx

Main Image:



Step 1: Initial Binary Message in First Image

We scan the first image and start with a binary message:

```
01100001 01001000 01010010 00110000 01100011 01001000 01001101 00110110 01001100 01111
001 00111001 00110000 01100100 00110010 01101100 00110000 01100100 01000111 01010110 0
1111001 01001100 01101101 01001110 01110110 01100010 01010011 00111001 01000100 011001
00 01000111 01011010 01010011 01100101 01011000 01100111 00111101
```

Converting it from binary to base64 yields the following:

aHR0cHM6Ly90d210dGVyLmNvbS9DdGZSeXg=

When decoded from base64, it becomes:

FLAG#1: <<https://twitter.com/CtfRyx>>

Step 2: Twitter Clues

Following the URL leads to a Twitter page. Scanning through the tweets, we come across a post mentioning a forgotten symbol and GATE research. In the ALT text of this post, there is a Morse code message

Translating the Morse code to text, we get:

```
MQQUV?BLQMPG+FJHQM@FQCK@WA
```

Step 3: XOR Encryption

A hint in a tweet image suggests XOR GATE. Using XOR with various keys reveals a simple text:

```
HTTPS:GITHUB.COMTHECTFNERD
```

Step 4: GitHub Repository

Following the GitHub link, we find a hint mentioning a secure algorithm, "MISUNDERSTANDING," and using "UTF-8" rather than the traditional encoding. Browsing through branches, we discover a SALT value:

```
f288d943341d1124b48eafc420962053b9a1482dfa03a4a0adabf05275ecd73935cdc98208444e69c11e39  
60777448f12f175fa8ec31f85f4f89928c047fc6a8c302dc80f5d9fe73a24fb14306886d57408d2850af69  
483064331fcef0175035
```

Step 5: Key Recovery

By examining the history, we retrieve the deleted key:

```
KEY: 1234567890987654
```

Step 6: Decryption

Utilizing the information gathered

- most secure algo = AES Algo (know from key phrase - most *secure* algo)

- IV = MISUNDERSTANDING (know from key phrase - Initially there was a "MISUNDERSTANDING")
- UTF 8 = not HEX but use UTF (know from key phrase - i did used "UTF-8" rather than the traditional one)
- KEY = 1234567890987654 (from the deleted file in the branch SALT)

Decrypt to text:

```
73 65 65 61 64 3a 2f 2f 6a 7a 66 65 66 2e 6d 70 2f 58 6e 73 4d 63 4d 4a 62 51 6d 72
```

Step 7: Hint Branch

Go to hint branch and get the hint

i love that HEX tiles round in fall guys, i always make sure to
DUMP as many player as I can

Convert it to HexDump by seeing only words in CAPS - get the normal text which is jumbled which deciphers to:

```
seed://jzfef.mp/XnsMcMJbQmr
```

Step 7: Another Hint

Examining the "Hint" branch history, we find a hint mentioning coordinates:

```
50.953977327760626, 4.819211508616649
```

Use this cords on Google Maps you get the house named "Rot15"

Step 8: ROT15 Decryption

Using ROT15 with the coordinates as a clue, we decode them to reveal the final flag link:

```
FINAL FLAG:  https://youtu.be/MchBrBYqFbg
```

Conclusion:

By meticulously deciphering binary, base64, Morse code, XOR encryption, and various cryptographic methods, we successfully navigated through this challenging puzzle to uncover the final flag link.