

Redpwn 2020 Crypto - 12 Shades of Redpwn

deuterium — 2020-06-27

Canonical HTML: <https://deut-erium.github.io/WriteUps/2020/redpwn/crypto/12-shades-of-redpwn/2020-06-27-redpwn-2020-12-shades-of-redpwn.html>

Abstract

CTF writeup: redpwnCTF 2020's 12 Shades of Redpwn makes the color wheel do arithmetic. Map hues to base-12 digits and convert the result to text.

12-shades-of-redpwn

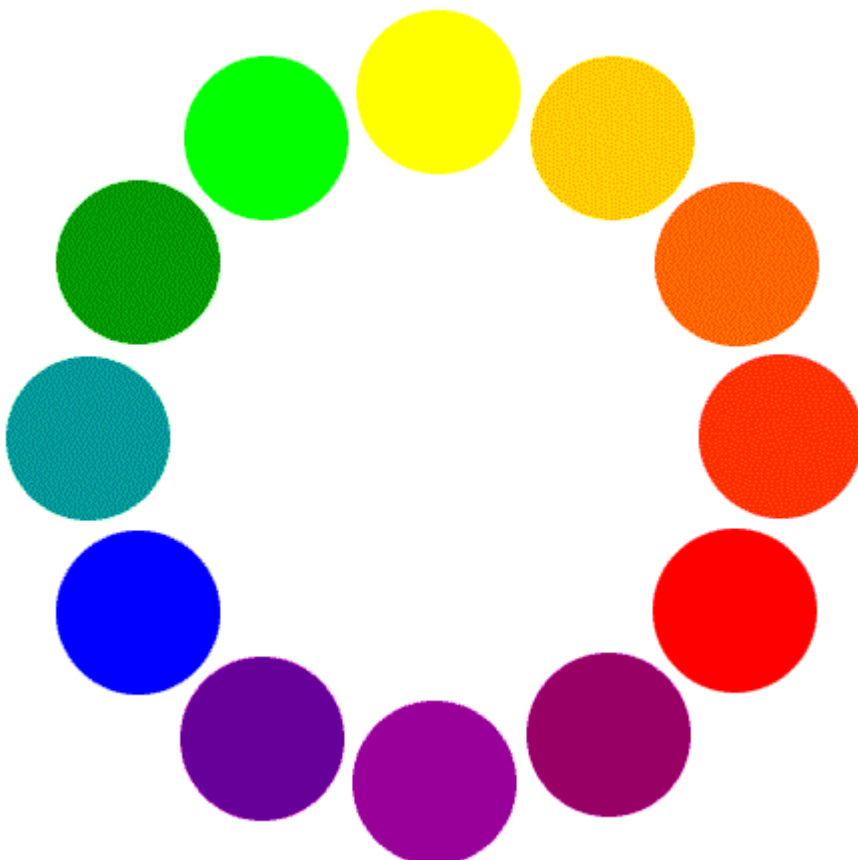
Description

Everyone's favorite guess god Tux just sent me a flag that he somehow encrypted with a color wheel!

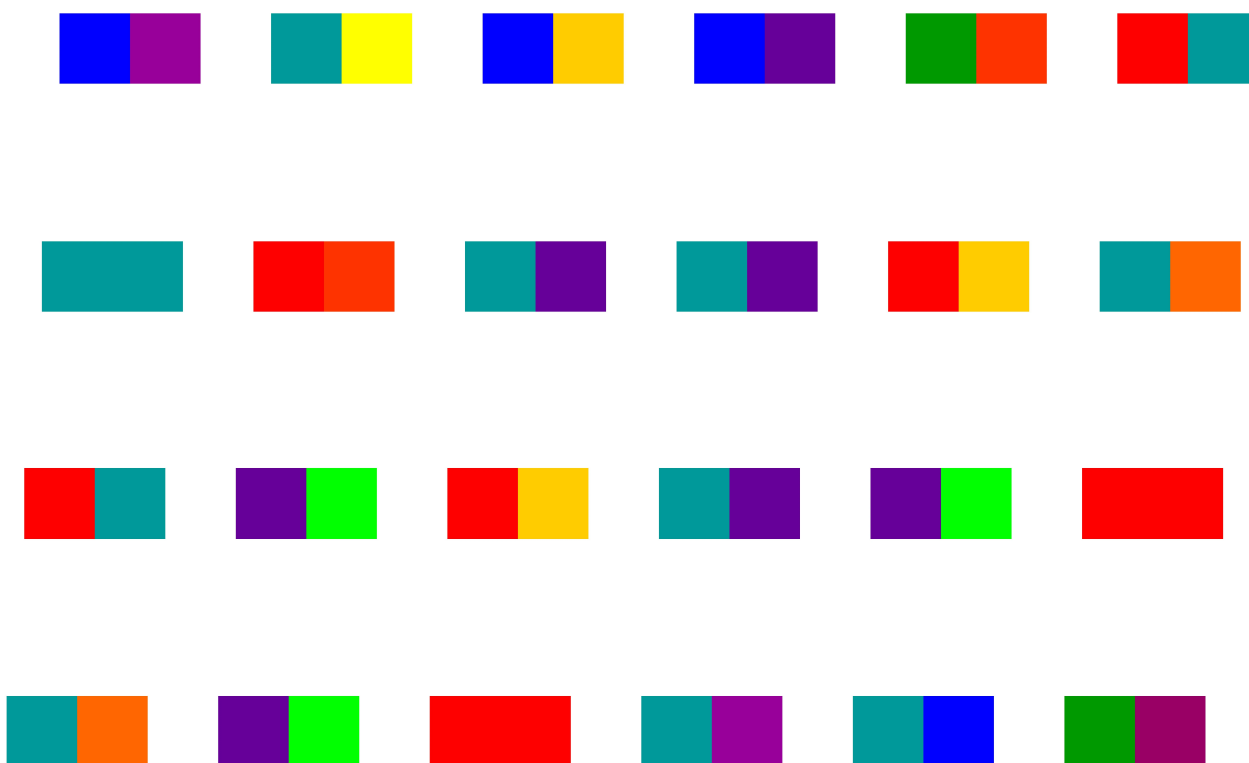
I don't even know where to start, the wheel looks more like a clock than a cipher... can you help me crack the code?

Files

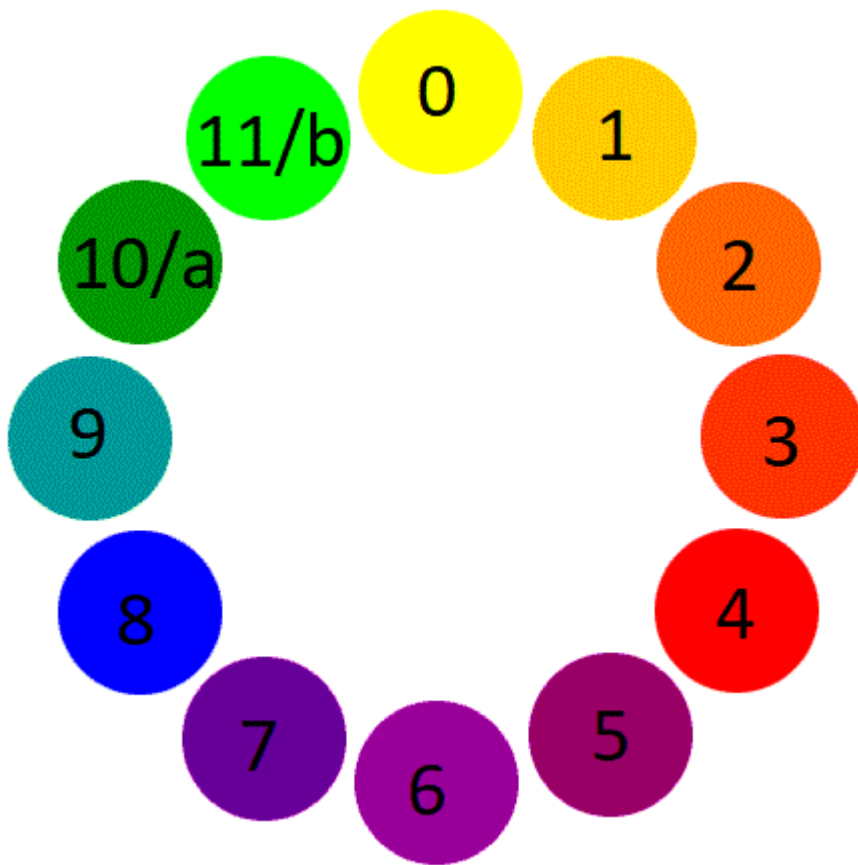
- [color-wheel.jpg](#)



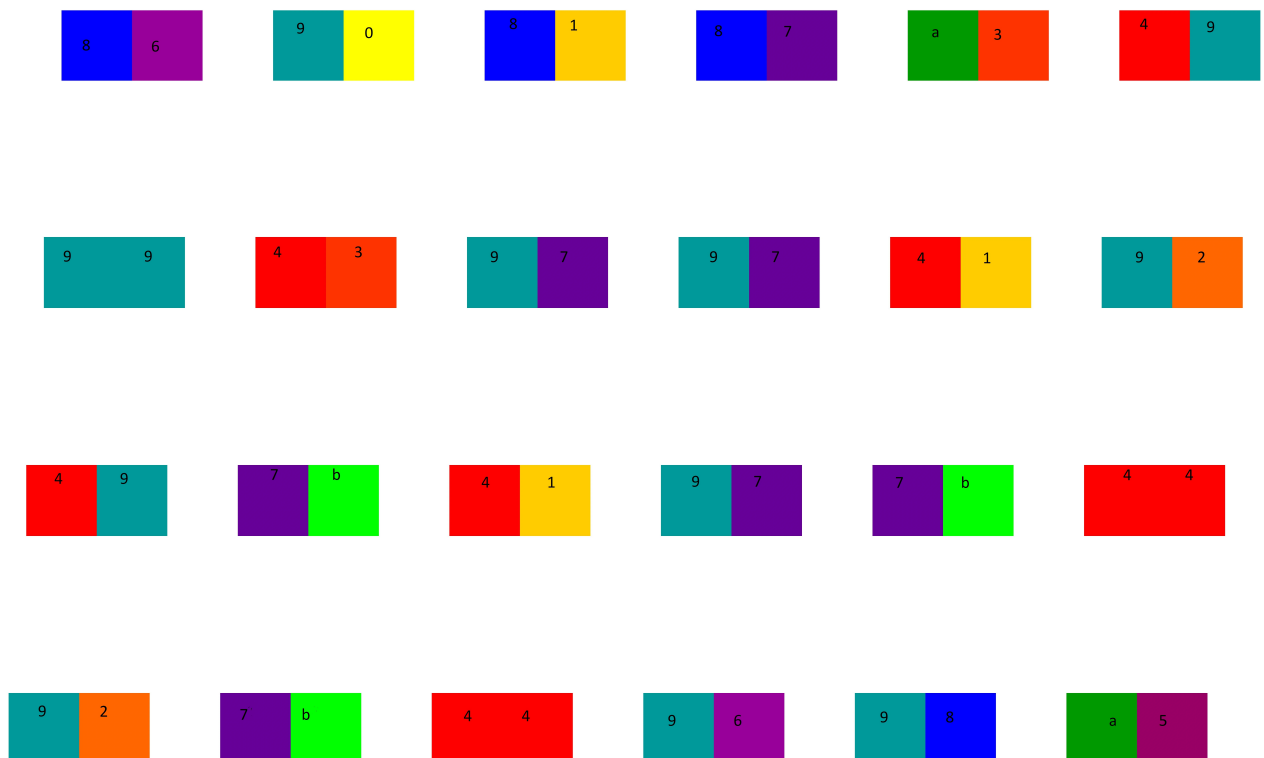
- ciphertext.jpg “Text” XD



Lets think like a clock, and start numbering colors from 0-11



And if we map the corresponding numbers, we get



```
86 90 81 87 a3 49 99 43 97 97 41 92 49 7b 41 97 7b 44 92 7b 44 96 98 a5
```

Now, we know that the flag begins with the prefix `flag{`, which helps us easily guess what it is, since 'f' and 'l' differ by 4, here the ciphertext also differs by 4 i.e 90-86. Also, 'l' and 'a' differ by 11, which confirms, that it is base 12 encoding.

Voila, here we go

```
EXTRACTED = '86 90 81 87 a3 49 99 43 97 97 41 92 49 7b 41 97 7b 44 92 7b 44 96 98 a5'

flag = ''.join([chr(int(i,12)) for i in EXTRACTED.split()])
print(flag)
```

flag = flag-9u3ss1n9'1s'4n'4rt"

| Interactive controls are omitted from this PDF. See the canonical HTML version.