2025

CTF INTERNACIONAL METARED ETAPA MEXICO

WRITEUP

CHALLENGE

Sully

ANUIES

ANUIES - TIC

meta red MÉXICO

Description

“Find the hidden message in the image, don't be sad.”

This challenge is of the LSB Steganography type, which consists of hiding the message in the least significant bits of an image's pixels.

In this case, the flag was hidden only in the blue pixels, in a staggered manner, such as pixels 0, 2, 4, 6, etc. This makes it opaque when viewing the image with a hexadecimal editor. The image to be deciphered is as follows:

Clues for this challenge

The file name is sully.png. Sully is the name of the main character in the movie Monsters Inc. which is blue in color.

The image is of three paint cans in red, blue, and green (RGB) colors, suggesting that the key is in the pixels.

In the corners of the image, the numbers 0, 2, 4, and 6 are grayed out, suggesting the alternating pixels.

Inside the green paint is the text THEFATRAT PARALLAX TRACK1. This refers to the song by the band THEFATRAT from their album PARALLAX. The first song (Track 1) is called *Hiding In The Blue*.

The challenge prompt says "don't be sad," referring to the color blue, which is associated with sadness.

Solution:

This challenge can be solved in different ways, in this case we will solve it with a Python script, using the Windows 10 operating system.

We must have Python installed to verify if this is the case, from CMD we type the following:

python –version

or

python3 –version

If it is not installed we can download it from this link:

https://www.python.org/downloads/

Once installed we create a folder, the name is indistinct in this case we will call it "extraer"

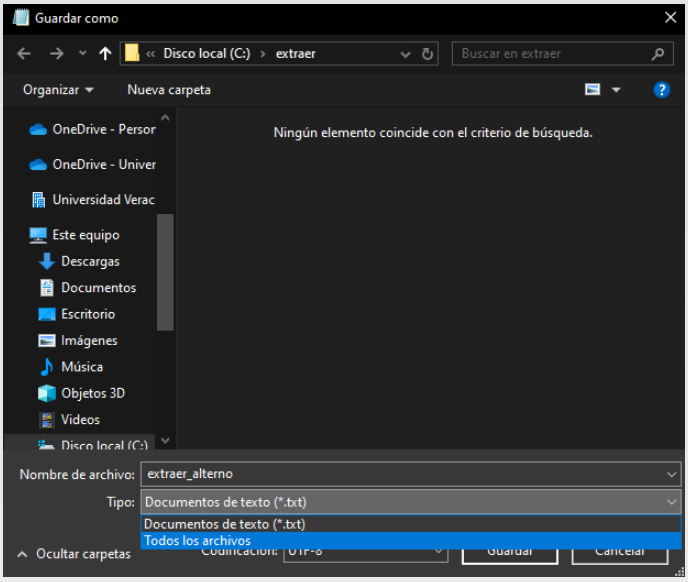
In this folder we store the sully.png file.

Using the Notepad text editor, we paste the following code:

```
from PIL import Image


def extraer_mensaje(imagen_entrada):
    """
    Extrae un mensaje oculto en el canal azul de la imagen,
    usando solo píxeles alternos (uno sí, otro no).
    """
    img = Image.open(imagen_entrada)
    img = img.convert("RGB")
    pixels = img.load()

    ancho, alto = img.size
    bits = []

    # Recorremos solo píxeles pares
    for y in range(alto):
        for x in range(ancho):
            idx = y * ancho + x
            if idx % 2 == 0:  # píxeles pares
                r, g, b = pixels[x, y]
                bits.append(b & 1)

    # Agrupar bits en bytes
    mensaje = ""
    for i in range(0, len(bits), 8):
        byte = bits[i:i+8]
        if len(byte) < 8:
            continue
        caracter = chr(int("".join(map(str, byte)), 2))
        mensaje += caracter
```

```
        if mensaje.endswith("###"):  # delimitador de fin
            return mensaje[:-3]

    return mensaje

# ------------------------
# USO DEL SCRIPT
# ------------------------
if __name__ == "__main__":
    entrada = "sully.png"  # imagen con el mensaje oculto
    mensaje = extraer_mensaje(entrada)
    print(f"✅ Mensaje revelado: {mensaje}")
```

Save the file as a text file with the name "extraer_alterno.py", making sure to select "All files" in the "Type" options.

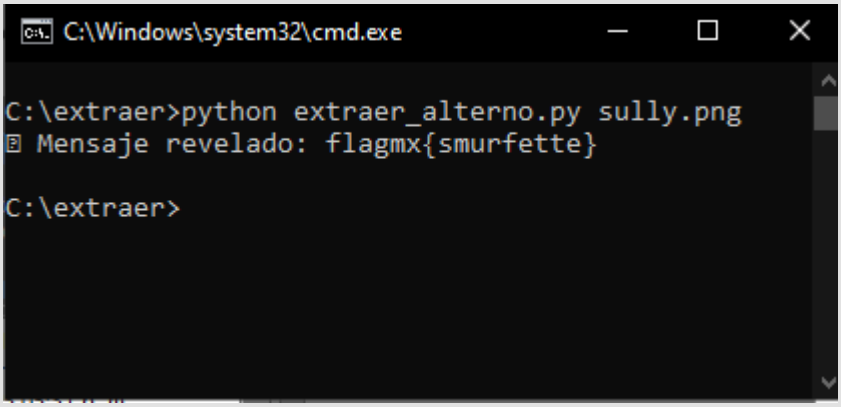


Both files (sully.png and extraer_alterno.py) must be in the same folder; in this case, the "Extraer" folder.

From the command prompt, navigate to the directory of your folder and type the following command:

python extraer_alterno.py sully.png

This should give us the following result:



The flag for this challenge is: **flagmx{smurfette}**