Description:

We are provided with two files. One is called “Recovery” with no filetype, and the other claims to be an .mp3 version of the song “My Heart Will Go On” by Celine Dion.

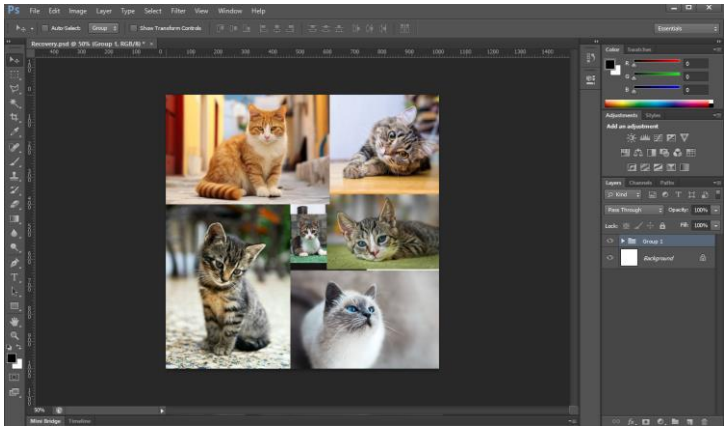
Solution:

Recovery:

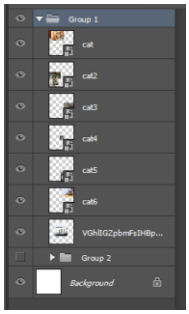
Running “file” on Recovery indicates it’s a photoshop image

```
┌──(kali㉿kali)-[~/Desktop]
└─$ file Recovery
Recovery: Adobe Photoshop Image, 1000 x 1000, RGB, 3x 8-bit channels
```

By changing the extension to .psd we can open it with photoshop or similar apps (such as https://www.photopea.com/)



This gives a collage of cats with something strange in the middle. The layers are in a folder, so drop that down:



This shows us the bottom image, and a second nested folder. Hiding all the cat images shows us this partial flag:

The name of this image is also notable, as when decoded from base64 gives:

The final piece lies with the waves.

Which isn't hugely useful but does imply an audio element.

When we unhide the second folder and hide the partial flag (they are behind it) we see:

A ham and a radio, intended to refer to amateur radio otherwise called HAM radio.

My Heart Will Go On:

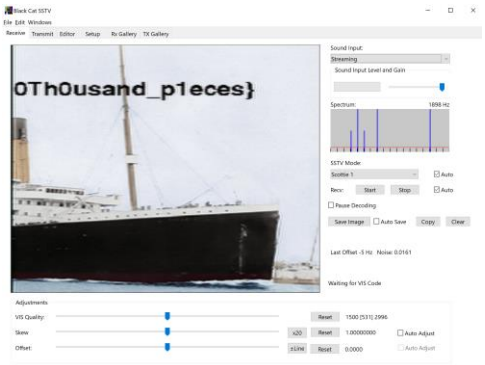
Listening to this MP3 will indicate very quickly that it is in fact not Celine Dion and is instead a combination of beeps and other such noise. The metadata is entirely changed to reflect the real song, though. It's unlikely that this style of audio will be recognisable immediately, however with the knowledge that HAM radio is involved it should be possible to ascertain that this is in fact an SSTV transmission. Slow-scan television (SSTV) is a picture transmission method, used mainly by amateur radio operators to transmit and receive static pictures. For example: Searching "HAM Radio Steganography" will give results about SSTV.

At this point, an SSTV decoder is required. There are two main options for this:

- The android/IOS app Robot36 – which is the easiest and most accessible option
- The PC software "Black Cat SSTV"

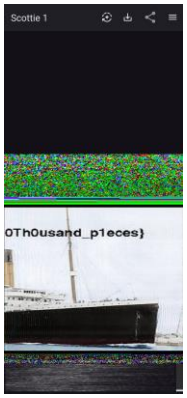
Using Black Cat:

Black cat does not require the audio to be played in full, and an audio file can be quickly interpreted by going to File > Decode audio file which will give us the answer and we can then copy/save that directly from the software.



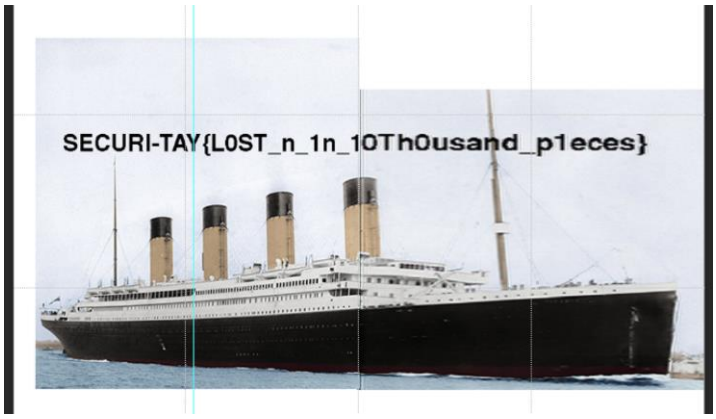
Using Robot36:

Start up the app and then play the audio into the microphone of the device, ideally with headphones pressed to the microphone to reduce image noise. Either way, it should give the right answer:



Flag

When combining the images, we get:



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