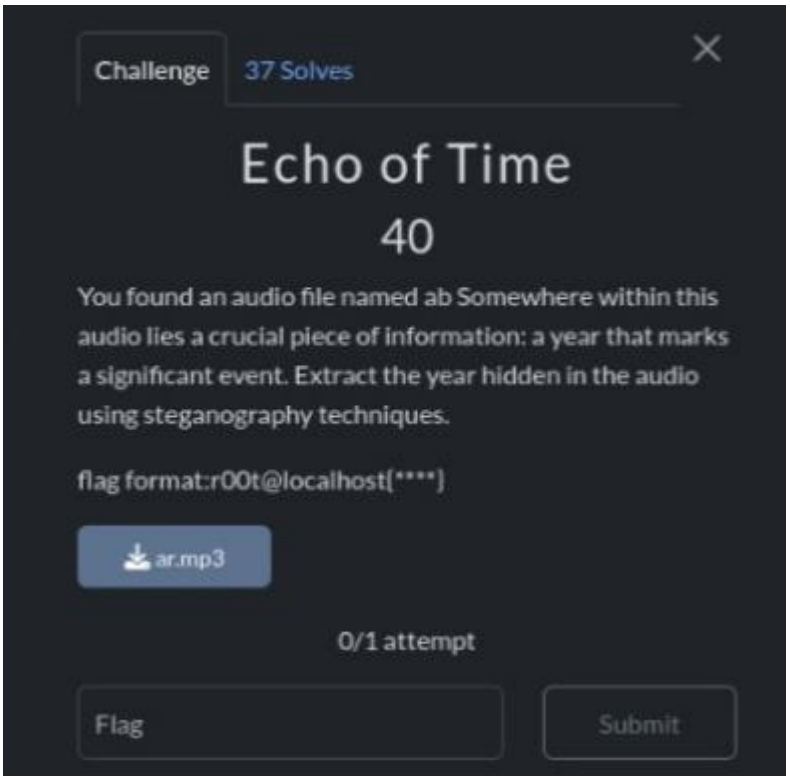
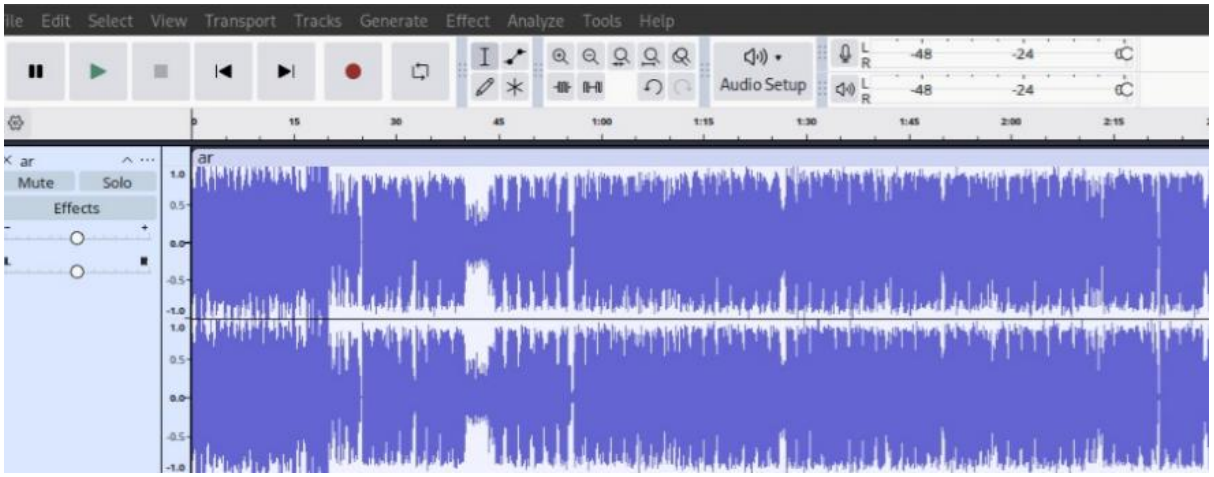
STEGNOGRAPHY

1. Echo of Time



- Download the audio file ar.mp3
- Open audacity app and import the audio file.



- Right click the audio track and enable spectrogram
- We get the flag 2025
- Flag : r00t@localhost{2025}

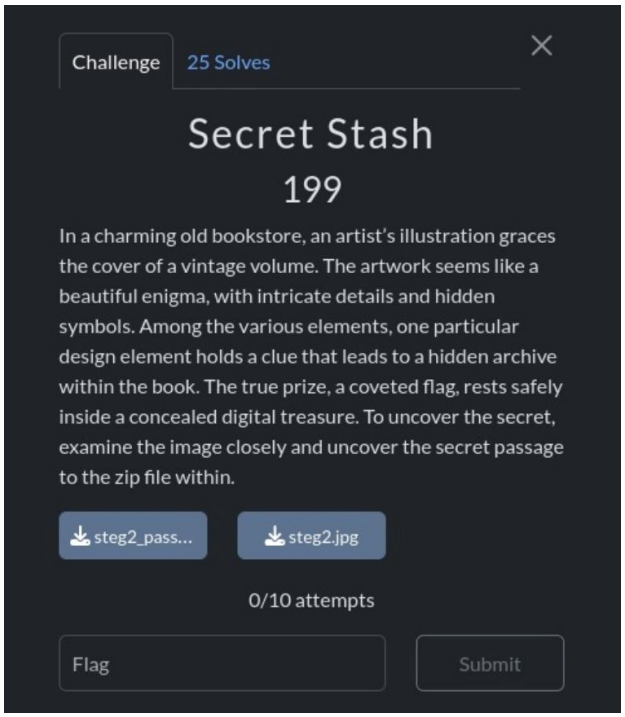
2. Hidden Truth

- Download challenge.png
- Open Kitty terminal and run the following command to get the meta data of the challenge.png file
- $ exiftool challenge.png

```
Y Cb Cr Sub Sampling            : YCbCr4:4:4 (1 1)
Aperture                        : 2.2
Image Size                      : 4608×3456
Megapixels                      : 15.9
Scale Factor To 35 mm Equivalent: 7.2
Shutter Speed                   : 1/14
Date/Time Original              : 2021:06:11 21:33:04-05:00
Modify Date                     : 2021:06:11 21:33:04-05:00
GPS Latitude                    : 39 deg 12' 22.41" N
GPS Longitude                   : 93 deg 49' 34.69" W
Circle Of Confusion             : 0.004 mm
Field Of View                   : 108.3 deg
Focal Length                    : 1.8 mm (35 mm equivalent: 13.0 mm)
GPS Position                    : 39 deg 12' 22.41" N, 93 deg 49' 34.69" W
Hyperfocal Distance             : 0.35 m
Light Value                     : 3.1
HotWater% exiftool challenge.png
ExifTool Version Number         : 13.06
File Name                       : challenge.png
Directory                       : .
File Size                       : 2.0 MB
File Modification Date/Time     : 2024:12:09 15:57:50+00:00
File Access Date/Time           : 2024:12:09 16:00:42+00:00
File Inode Change Date/Time     : 2024:12:09 15:57:50+00:00
File Permissions                : -rw-r--r--
File Type                       : PNG
File Type Extension             : png
MIME Type                       : image/png
Image Width                     : 1280
Image Height                    : 720
Bit Depth                       : 8
Color Type                      : RGB
Compression                     : Deflate/Inflate
Filter                          : Adaptive
Interlace                       : Noninterlaced
Pixels Per Unit X               : 3780
Pixels Per Unit Y               : 3780
Pixel Units                     : meters
XMP Toolkit                     : Image::ExifTool 12.76
Ads Created                     : 2024-08-30
Ads Ext Id                      : 03825ccf-d796-4baa-8dda-96a2acd20326
Ads Fb Id                       : 525265914179580
Ads Touch Type                  : 2
Title                           : cm9vdEBsb2NhbGhvc3R7QzBuZ3JAdCRfWTB1X0YwdW5kX1RoM19N
eXN0M3J5X04wd30=
Image Size                      : 1280×720
Megapixels                      : 0.922
HotWater%
```

- We can see the title is encrypted
- Decode it using base64
- We can get the Flag:
  root@localhost{C0ngr@t$_Y0u_F0und_Th3_Myst3ry_N0w}

3. Secret Stash



- Download the 2 files steg2_pass.txt steg2.jpg
- Open the kitty terminal and enter the following command
  $ strings steg2_pass.txt
- Readable Password will be displayed

- Enter the following command to extract the hidden zip file in steg2.png
  $ steghide extract -sf steg2.jpg
  Enter passphrase : UnlocktheImage

- We will get secret.zip file.
- Unzip secret.zip file
- To get the password by using john the ripper.
- You will get the password as cookie1
- After extracting you will get flag.txt
  $ Cat flag.txt
  Flag : root@localhost{SecureByDesign!2024}