Metadata-Extraction-using-ExifTool-log2timeline-and-Hidden-Data-Search-using-Steganography-Tools

AIM:

To extract metadata, perform timeline analysis, and search for hidden data using forensic tools like ExifTool, log2timeline, and steganography detection tools.

DESIGN STEPS:

Step 1:

Use exiftool to extract metadata from files such as images, documents, and videos.

Step 2:

Use log2timeline and plaso to create and analyze event timelines from system logs and file metadata.

Step 3:

Apply steganography detection tools like steghide, zsteg, or binwalk to uncover hidden data in media files.

PROGRAM:

Metadata and Timeline Forensics, Steganography Analysis Steps

OUTPUT:

✅ A. Using ExifTool – for file metadata

- 📦 **Install:**

```
sudo apt update
sudo apt install exiftool -y
```

- 📂 **Extract metadata from a file:**

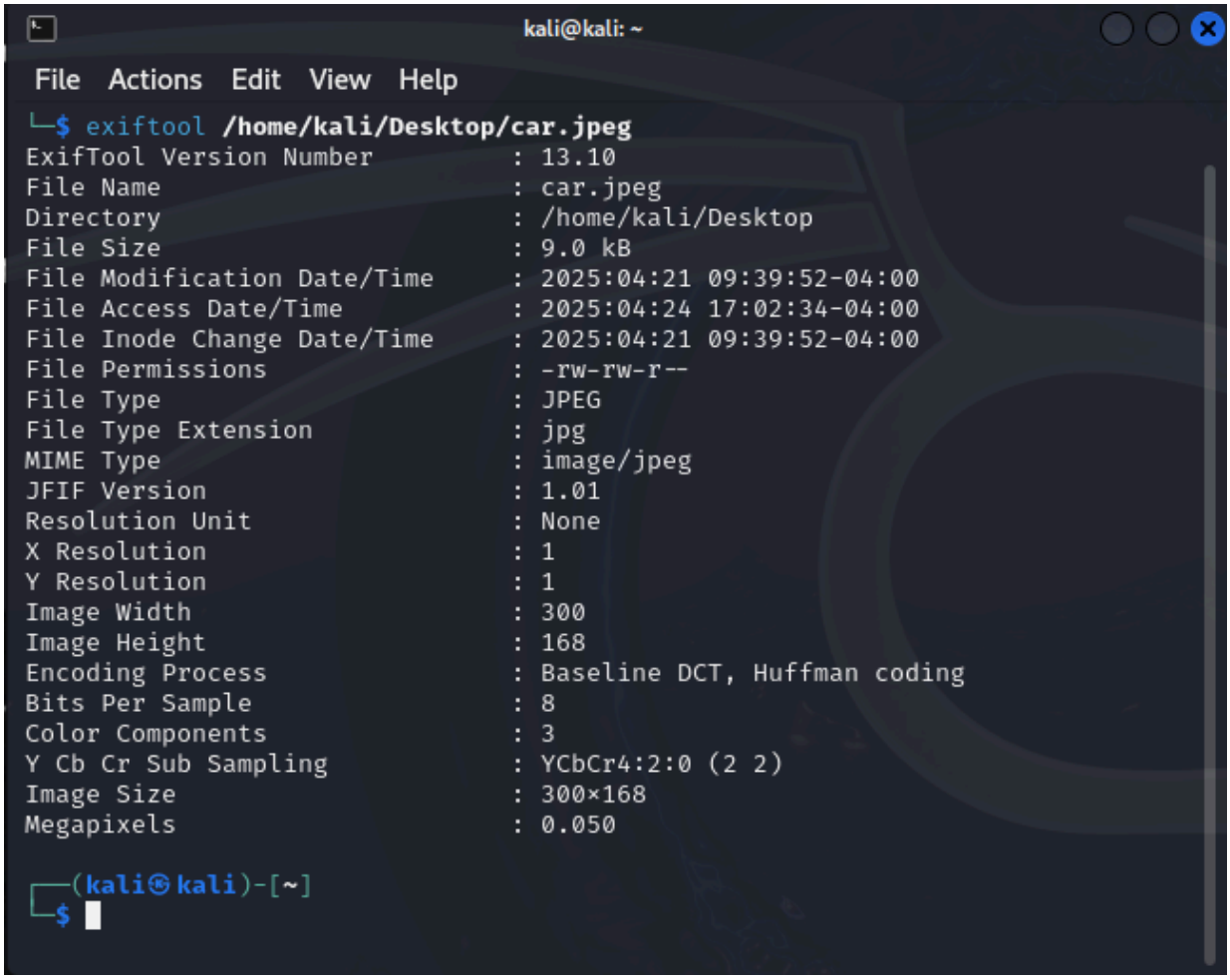
EXAMPLE

```
exiftool image.jpg
```

- 📁 Batch process a folder:

```
exiftool -r /path/to/folder
```

- 📌 Useful flags:
- `-G: Show metadata group`
- `-time:all: Show only timestamps`
- `-GPSLatitude -GPSLongitude: Extract GPS data`



install log2timeline

```
sudo apt install plaso -y
```

```
sudo apt install steghide -y
```

- Embed data

```
steghide embed -cf /home/kali/Desktop/car.jpeg -ef /home/kali/Desktop/message.txt
```

```
┌──(kali㉿kali)-[~]
└─$ steghide embed -cf  /home/kali/Desktop/car.jpeg -ef /home/kali/Desktop/message.txt
Enter passphrase:
Re-Enter passphrase:
embedding "/home/kali/Desktop/message.txt" in "/home/kali/Desktop/car.jpeg"... done

┌──(kali㉿kali)-[~]
└─$
```

- Extract hidden data:

Example: $ steghide extract -sf hidden.jpg

```
steghide extract -sf /home/kali/Desktop/car.jpeg
```

```
┌──(kali㉿kali)-[~]
└─$ steghide extract -sf /home/kali/Desktop/car.jpeg

Enter passphrase:
wrote extracted data to "message.txt".

┌──(kali㉿kali)-[~]
└─$
```

Using binwalk – for file analysis

```
sudo apt install binwalk -y
binwalk suspicious.jpg
```

```
binwalk /home/kali/Desktop/car.jpeg
```

```
┌──(kali㉿kali)-[~]
└─$ binwalk /home/kali/Desktop/car.jpeg

DECIMAL       HEXADECIMAL     DESCRIPTION
--------------------------------------------------------------------------------
0             0x0             JPEG image data, JFIF standard 1.01

┌──(kali㉿kali)-[~]
└─$
```

RESULT:

Metadata was successfully extracted, timeline analysis was completed, and hidden data was identified using steganography tools.