

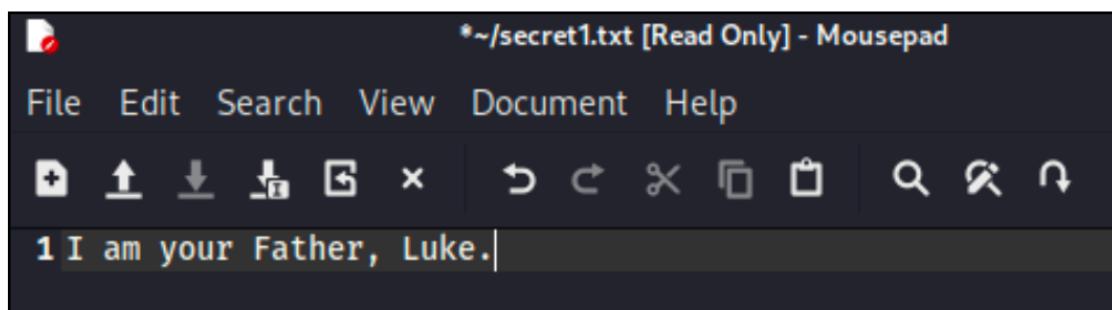
Steganography Technique For Data Hiding

Embedding Short Text in Image

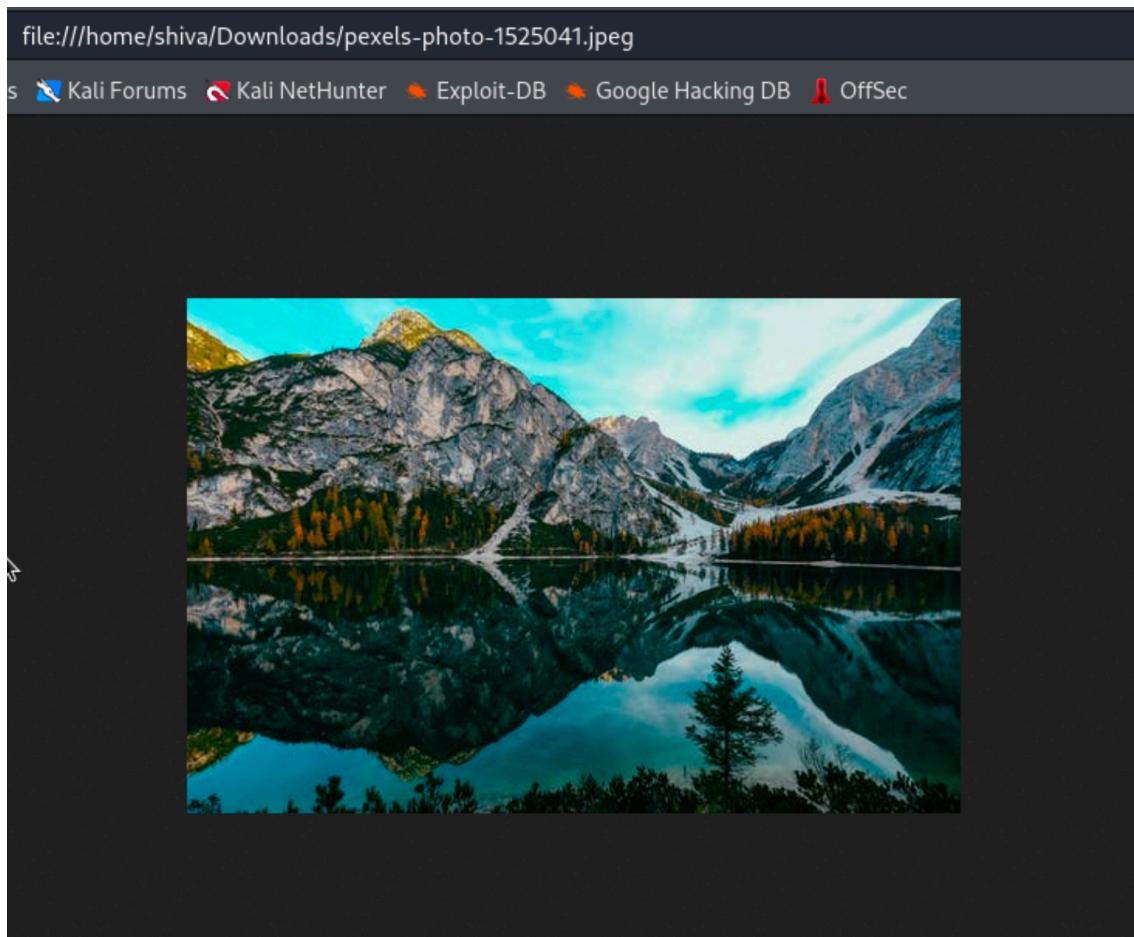
Creating Text File

```
(root💀 kali)-[~/home/shiva]
# nano secret1.txt
```

Writing in Text File



Downloaded Image from Browser



Installing Steghide Tool

```
(root㉿kali)-[~/home/shiva]
└─# apt-get install steghide
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  fonts-roboto-slab libgdk-pixbuf-xlib-2.0-0 libgdk-pixbuf2.0-0 libvpx6 python3-ipaddr python3-twisted-bin ruby-atomic ruby-thread-safe
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  libmcrypt4 libmhash2
Suggested packages:
  libmcrypt-dev mcrypt
The following NEW packages will be installed:
  libmcrypt4 libmhash2 steghide
0 upgraded, 3 newly installed, 0 to remove and 234 not upgraded.
Need to get 300 kB of archives.
After this operation, 873 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://ftp.harukasan.org/kali kali-rolling/main arm64 libmcrypt4 arm64 2.5.8-7 [70.3 kB]
Get:2 http://ftp.harukasan.org/kali kali-rolling/main arm64 libmhash2 arm64 0.9.9.9-9 [99.9 kB]
Get:3 http://ftp.harukasan.org/kali kali-rolling/main arm64 steghide arm64 0.5.1-15 [130 kB]
Fetched 300 kB in 4s (80.6 kB/s)
Selecting previously unselected package libmcrypt4.
(Reading database ... 271231 files and directories currently installed.)
Preparing to unpack .../libmcrypt4_2.5.8-7_arm64.deb ...
Unpacking libmcrypt4 (2.5.8-7) ...
Selecting previously unselected package libmhash2:arm64.
Preparing to unpack .../libmhash2_0.9.9.9-9_arm64.deb ...
Unpacking libmhash2:arm64 (0.9.9.9-9) ...
Selecting previously unselected package steghide.
Preparing to unpack .../steghide_0.5.1-15_arm64.deb ...
Unpacking steghide (0.5.1-15) ...
Setting up libmhash2:arm64 (0.9.9.9-9) ...
Setting up libmcrypt4 (2.5.8-7) ...
Setting up steghide (0.5.1-15) ...
Processing triggers for libc-bin (2.33-6) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for kali-menu (2021.4.2) ...
```

Steghide Options

```
(root㉿kali)-[~/home/shiva]
└─# steghide --help
steghide version 0.5.1

the first argument must be one of the following:
  embed, --embed          embed data
  extract, --extract      extract data
  info, --info            display information about a cover- or stego-file
    info <filename>       display information about <filename>
  encinfo, --encinfo      display a list of supported encryption algorithms
  version, --version      display version information
  license, --license      display steghide's license
  help, --help             display this usage information
```

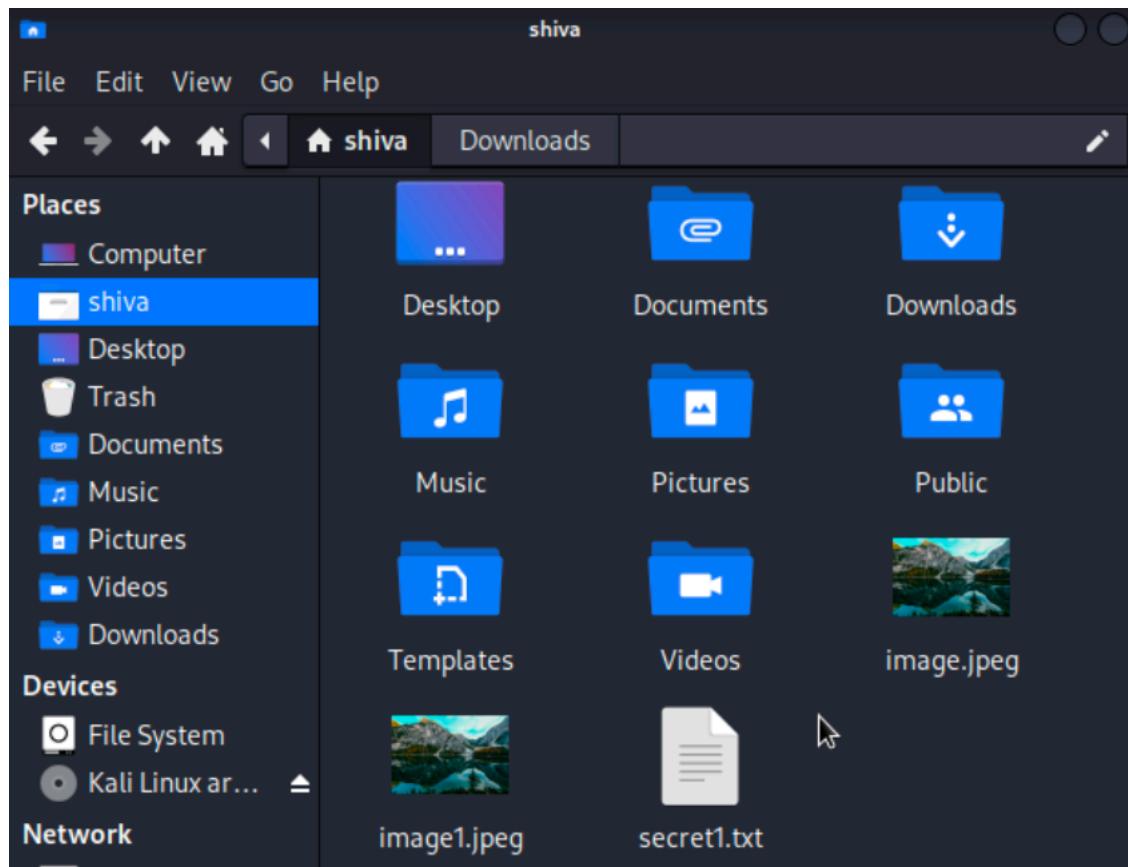
Embedding Text in Image

```
(root㉿kali)-[~/home/shiva]
└─# steghide embed -cf image.jpeg -ef secret1.txt
Enter passphrase:
Re-Enter passphrase:
embedding "secret1.txt" in "image.jpeg" ... done
```

Embedding Text in Image and Saving in Different Copy of Image

```
[root@kali ~]# steghide embed -cf image.jpeg -ef secret1.txt -sf image1.jpeg
Enter passphrase:
Re-Enter passphrase:
embedding "secret1.txt" in "image.jpeg" ... done
writing stego file "image1.jpeg" ... done
```

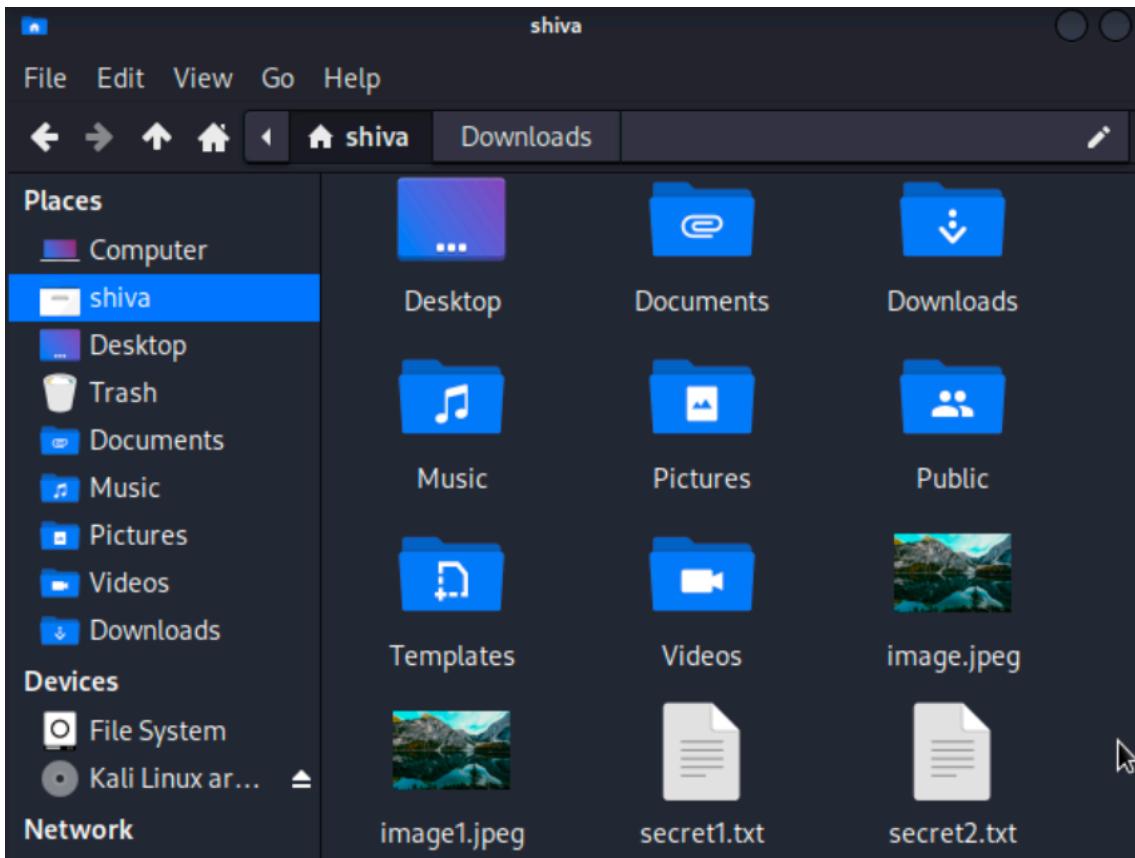
Files in the Folder



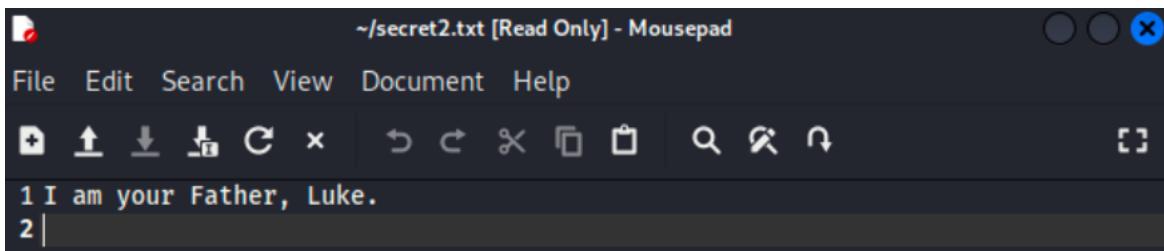
Extracting Data from Image to another Text File

```
[root@kali ~]# steghide extract -f image1.jpeg -xf secret2.txt
Enter passphrase:
wrote extracted data to "secret2.txt".
```

New Text File



Text is same as Old Text



Embedding Large Text in Image

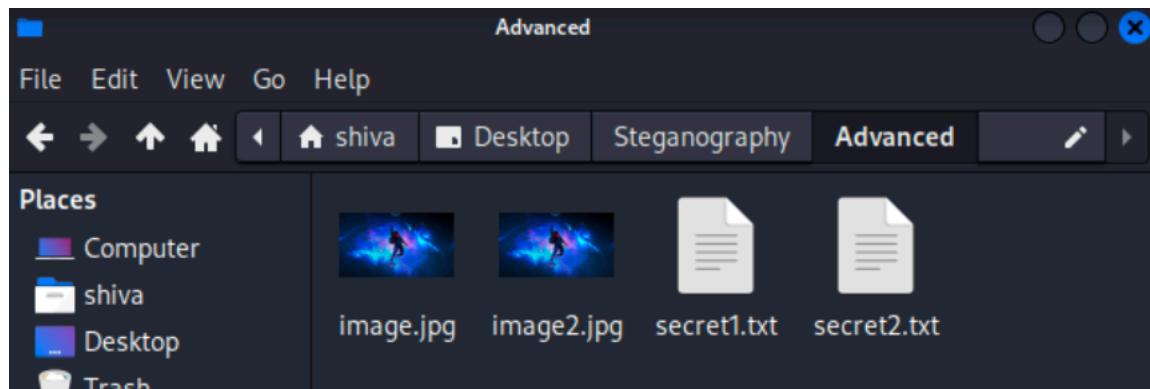
Embedding Text in Image and giving Password in it

```
(root💀 kali)-[~/home/shiva/Desktop/Steganography/Advanced]
└─# steghide embed -cf image.jpg -ef secret1.txt -p 1234 -z 3 -sf image2.jpg
embedding "secret1.txt" in "image.jpg" ... done
writing stego file "image2.jpg" ... done
```

Text is extracted from Image to new Text file

```
(root💀 kali)-[~/home/shiva/Desktop/Steganography/Advanced]
└─# steghide extract -sf image2.jpg -xf secret2.txt
Enter passphrase:
wrote extracted data to "secret2.txt".
```

Folder with Texts and Images



Encrypting the text using symmetric key algorithm and then embedding it for sensitive data

Encrypt the sensitive file using ssl tool with symmetric key algorithm.

```
(root💀 kali)-[~/home/shiva/Desktop/Steganography/Encryption]
└─# openssl enc -aes-256-cbc -base64 -in secret1.txt -out enc_secret1.txt
enter aes-256-cbc encryption password:
Verifying - enter aes-256-cbc encryption password:
*** WARNING : deprecated key derivation used.
Using -iter or -pbkdf2 would be better.
```

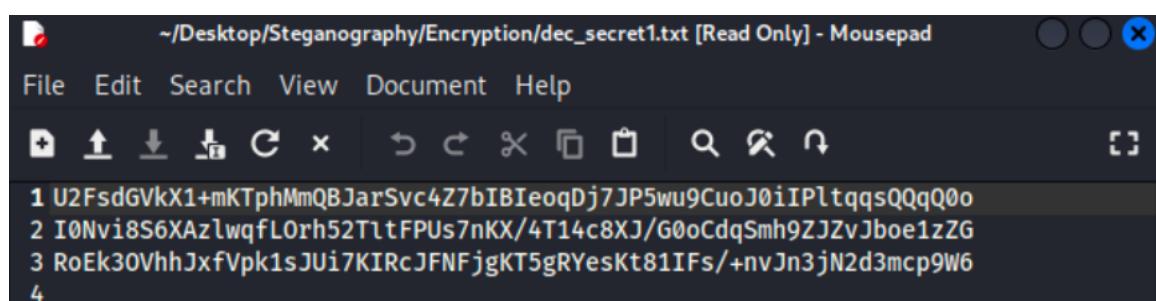
Now embed the text file in jpeg file and then write it in another image file.

```
(root💀 kali)-[~/home/shiva/Desktop/Steganography/Encryption]
└─# steghide embed -cf image1.jpg -ef enc_secret1.txt -sf image2.jpg -p 1234
embedding "enc_secret1.txt" in "image1.jpg" ... done
writing stego file "image2.jpg" ... done
```

Now extract the data from the image file.

```
(root💀 kali)-[~/home/shiva/Desktop/Steganography/Encryption]
└─# steghide extract -sf image2.jpg -p 1234 -xf dec_secret1.txt
wrote extracted data to "dec_secret1.txt".
```

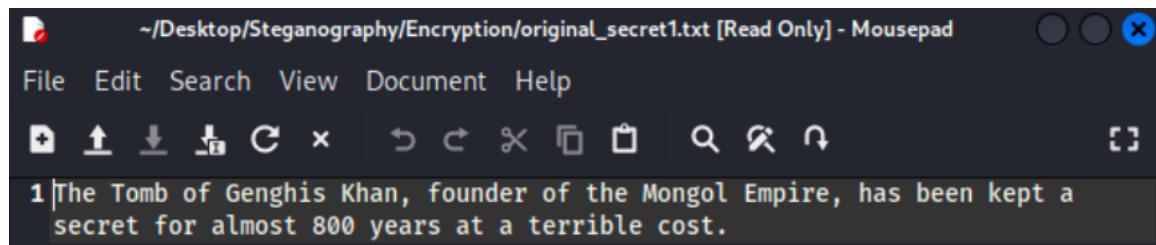
We will get the sensitive data in encrypted form.



Now to decrypt the data and save it in another file.

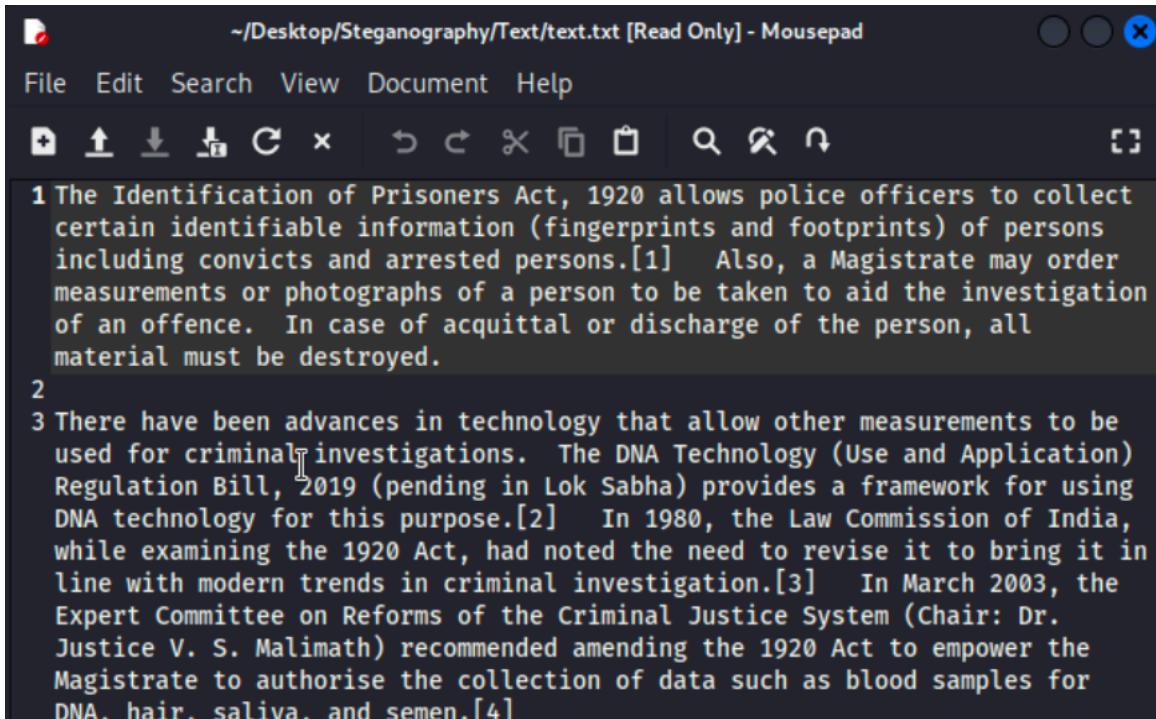
```
(root💀 kali)-[~/home/shiva/Desktop/Steganography/Encryption]
└─# openssl enc -aes-256-cbc -d -base64 -in dec_secret1.txt -out original_secret1.txt
enter aes-256-cbc decryption password:
*** WARNING : deprecated key derivation used.
Using -iter or -pbkdf2 would be better.
```

We can see our decrypted sensitive data.



Hiding Text File in a Text File

Make a text file and save a large text/paragraph in the file.



Install Stegsnow

```
(root㉿kali)-[~/Desktop/Steganography/Text]
# apt-get install stegsnow
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  fonts-roboto-slab libgdk-pixbuf2.0-0 libgdk-pixbuf2.0-0 libvpx6 python3-ipaddr python3-twisted-bin ruby-atomic ruby-thread-safe
Use 'sudo apt autoremove' to remove them.
The following NEW packages will be installed:
  stegsnow
0 upgraded, 1 newly installed, 0 to remove and 234 not upgraded.
Need to get 15.4 kB of archives.
After this operation, 53.2 kB of additional disk space will be used.
Get:1 http://ftp.harukasan.org/kali kali-rolling/main arm64 stegsnow arm64 20130616-6 [15.4 kB]
Fetched 15.4 kB in 2s (9,920 B/s)
Selecting previously unselected package stegsnow.
(Reading database ... 271261 files and directories currently installed.)
Preparing to unpack .../stegsnow_20130616-6_arm64.deb ...
Unpacking stegsnow (20130616-6) ...
Setting up stegsnow (20130616-6) ...
Processing triggers for kali-menu (2021.4.2) ...
Processing triggers for man-db (2.10.2-1) ...

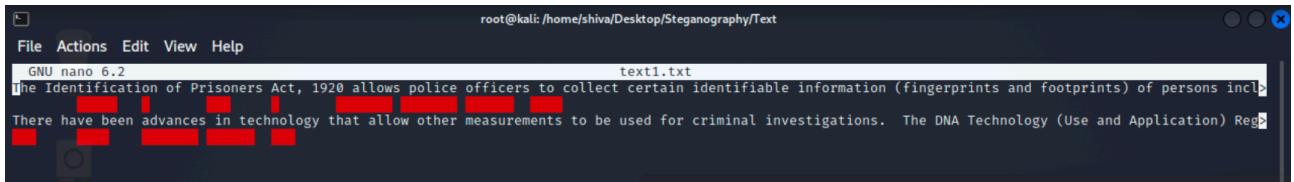
The Identification of Prisoners Act, 1920 allows police officers to collect certain identifiable information (fingerprints and footprints) of persons including convicts and arrested persons.[1] Also, a Magistrate may order measurements or photographs of a person to be taken to aid the investigation of an offence. In case of acquittal or discharge of the person, all material must be destroyed.

There have been advances in technology that allow other measurements to be used for criminal investigations. The DNA Technology (Use and Application) Regulation Bill, 2019 (pending in Lok Sabha) provides a framework for using DNA technology for this purpose.[2] In 1980, the Law Commission of India, while examining the 1920 Act, had noted the need to revise it to bring it in line with modern trends in criminal investigation.[3] In March 2003, the Expert Committee on Reforms of the Criminal Justice System (Chair: Dr. Justice V. S. Malimath) recommended amending the 1920 Act to empower the Magistrate to authorise the collection of data such as DNA, hair, saliva, and semen.[4]
```

Embed the text inside the “ ” and save it to another file

```
(root㉿kali)-[~/Desktop/Steganography/Text]
# stegsnow -C -m 'Hi Hello' text.txt text1.txt
Compressed by 29.69%
Message used approximately 100.00% of available space.
```

The same data can be seen in another file.



root@kali: /home/shiva/Desktop/Steganography/Text

File Actions Edit View Help

GNU nano 6.2 text1.txt

The Identification of Prisoners Act, 1920 allows police officers to collect certain identifiable information (fingerprints and footprints) of persons incl>

There have been advances in technology that allow other measurements to be used for criminal investigations. The DNA Technology (Use and Application) Reg>

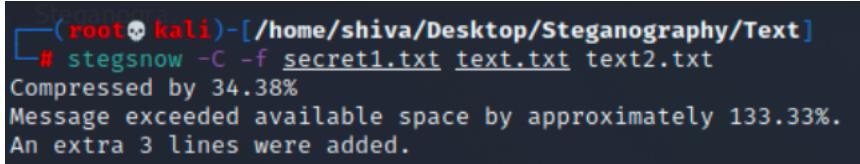
The message embedded earlier can be seen now.



```
(root💀 kali)-[~/home/shiva/Desktop/Steganography/Text]
# stegsnow -C text1.txt
Hi Hello
```

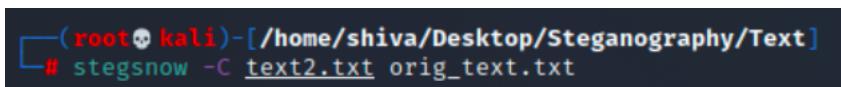
Hiding Text File in a Larger Text File

Embed one file in another text file and then the embedded file will be saved in new one



```
(root💀 kali)-[~/home/shiva/Desktop/Steganography/Text]
# stegsnow -f secret1.txt text.txt text2.txt
Compressed by 34.38%
Message exceeded available space by approximately 133.33%.
An extra 3 lines were added.
```

Decode the file in another file



```
(root💀 kali)-[~/home/shiva/Desktop/Steganography/Text]
# stegsnow -C text2.txt orig_text.txt
```

The sensitive data can be seen

