
Stéganô Documentation

Release 0.5.1

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PRESENTATION

Stéganô is a Python [steganography](#) module.

Steganography is the art and science of writing hidden messages in such a way that no one, apart from the sender and intended recipient, suspects the existence of the message, a form of security through obscurity. Consequently, functions provided by Stéganô only hide messages, without encryption. Steganography is often used with cryptography.

Stéganô implements these methods of hiding:

- using the red portion of a pixel to hide ASCII messages;
- using the [Least Significant Bit](#) (LSB) technique;
- using the LSB technique with sets based on generators (Sieve for Eratosthenes, Fermat, Mersenne numbers, etc.);
- using the description field of the image (JPEG and TIFF).

Moreover some methods of [steganalysis](#) are provided:

- steganalysis of LSB encoding in color images;
- statistical steganalysis.

REQUIREMENTS

- Python ≥ 3.2 (tested with Python 3.5.1);
- Pillow;
- piexif.

3.1 Installation

```
$ sudo pip install Stegano
```

You will be able to use Stéganô in your Python programs or as a command line tool.

If you want to retrieve the source code (with the unit tests):

```
$ git clone https://github.com/cedricbonhomme/Stegano.git
```

3.2 Using Stéganô as a Python module

3.2.1 LSB method

```
Python 3.5.1 (default, Dec 7 2015, 11:33:57)
[GCC 4.9.2] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> from stegano import slsb
>>> secret = slsb.hide("./examples/pictures/Lenna.png", "Hello world!")
>>> secret.save("./Lenna-secret.png")
>>> print(slsb.reveal("./Lenna-secret.png"))
Hello world!
```

3.2.2 Description field of the image

For JPEG and TIFF images.

```
Python 3.5.1 (default, Dec 7 2015, 11:33:57)
[GCC 4.9.2] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> from stegano import exifHeader
>>> secret = exifHeader.hide("./examples/pictures/20160505T130442.jpg",
                             "./image.jpg", secret_message="Hello world!")
>>> print(exifHeader.reveal("./image.jpg"))
```

More examples are available in the [tests](#).

3.3 Using Stéganô in command line for your scripts

3.3.1 Display help

```
$ slsb --help
Usage: slsb [options]

Options:
--version          show program's version number and exit
-h, --help         show this help message and exit
--hide            Hides a message in an image.
--reveal          Reveals the message hided in an image.
-i INPUT_IMAGE_FILE, --input=INPUT_IMAGE_FILE
                  Input image file.
-o OUTPUT_IMAGE_FILE, --output=OUTPUT_IMAGE_FILE
                  Output image containing the secret.
-m SECRET_MESSAGE, --secret-message=SECRET_MESSAGE
                  Your secret message to hide (non binary).
-f SECRET_FILE, --secret-file=SECRET_FILE
                  Your secret to hide (Text or any binary file).
-b SECRET_BINARY, --binary=SECRET_BINARY
                  Output for the binary secret (Text or any binary
                  file).
```

3.3.2 Hide and reveal a text message

```
$ slsb --hide -i ./pictures/Lenna.png -o ./pictures/Lenna_enc.png -m HelloWorld!
$ slsb --reveal -i ./pictures/Lenna_enc.png
HelloWorld!
```

3.3.3 Hide and reveal a binary file

```
$ wget http://www.gnu.org/music/free-software-song.ogg
$ slsb --hide -i ./pictures/Montenach.png -o ./pictures/Montenach_enc.png -f ./free-software-song.ogg
$ rm free-software-song.ogg
$ slsb --reveal -i ./pictures/Montenach_enc.png -b ./song.ogg
```

3.3.4 Hide and reveal a message by using the description field of the image

```
$ ./exif-header.py --hide -i ./Elisha-Cuthbert.jpg -o ./Elisha-Cuthbert_enc.jpg -f ./fileToHide.txt
$ ./exif-header.py --reveal -i ./Elisha-Cuthbert_enc.jpg
```

3.3.5 Steganalysis

```
$ steganalysis-parity -i ./pictures./Lenna_enc.png -o ./pictures/Lenna_enc_st.png
```

More information available at the [tutorial](#) page. You can also take a look at the [unit tests](#).

LICENSE

Stéganô is under GPL v3 license.

DONATION

If you wish and if you like Stéganô, you can donate via bitcoin. My bitcoin address:
[1GVmhR9fbBeEh7rP1qNq76jWArDdDQ3otZ](https://www.blockchain.com/btc/address/1GVmhR9fbBeEh7rP1qNq76jWArDdDQ3otZ)

CONTACT

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