Digital Forensics Lab Report: 1

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Aim/Purpose: Study of a Steganography tools.

Tool Names: -

- OpenPuff
- Spammimic
- QuickCrypto
- Pelock
- STEGONAUT

Links:

- Text Steganography:- spammimic - encode
- Images Steganography- Steganography Online Codec - Hide Message in Image (pelock.com)
- Audio Steganography :- STEGONAUT - Audio Steganography Tool
- Folder Steganography:-Download QuickCrypto - Free 15 Day Trial Period

## <u>Task 1: Perform Text Steganography using Spammimic</u>

- **Website link :- <u>spammimic - encode</u>**

  - Spam Mimic is a popular steganography tool that allows users to hide information inside spam messages.
  - Spam Mimic works by using a context free probabilistic grammar to derive its output. Each production of the grammar is translated into a Huffman tree based on the probabilities assigned to each variable or terminal symbol in the production.

- **Original Text :-** I am here
- **Password:-** ***(123)
- **Decode Text :-**

Dear Friend ; This letter was specially selected to
be sent to you . If you no longer wish to receive our
publications simply reply with a Subject: of "REMOVE"
and you will immediately be removed from our mailing
list ! This mail is being sent in compliance with Senate
bill 2416 , Title 5 , Section 309 . This is not multi-level
marketing . Why work for somebody else when you can
become rich in 57 WEEKS . Have you ever noticed most
everyone has a cellphone & most everyone has a cellphone
. Well, now is your chance to capitalize on this !
We will help you increase customer response by 150%
and SELL MORE . You are guaranteed to succeed because
we take all the risk ! But don't believe us ! Mr Ames
of Washington tried us and says "Now I'm rich, Rich,
RICH" . This offer is 100% legal . Because the Internet
operates on "Internet time" you must hurry ! Sign up
a friend and you get half off . God Bless

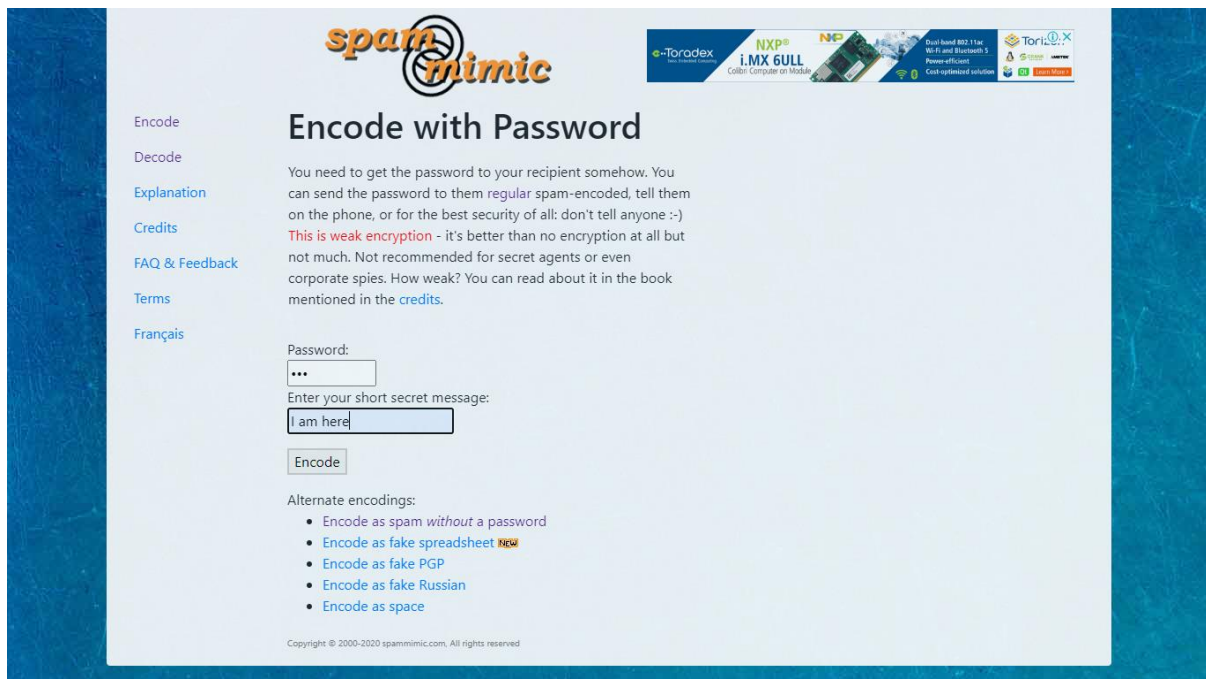*Figure 1 Encrypted text of message*

Steps:

1. Go to spammimic website. And select type of encoding
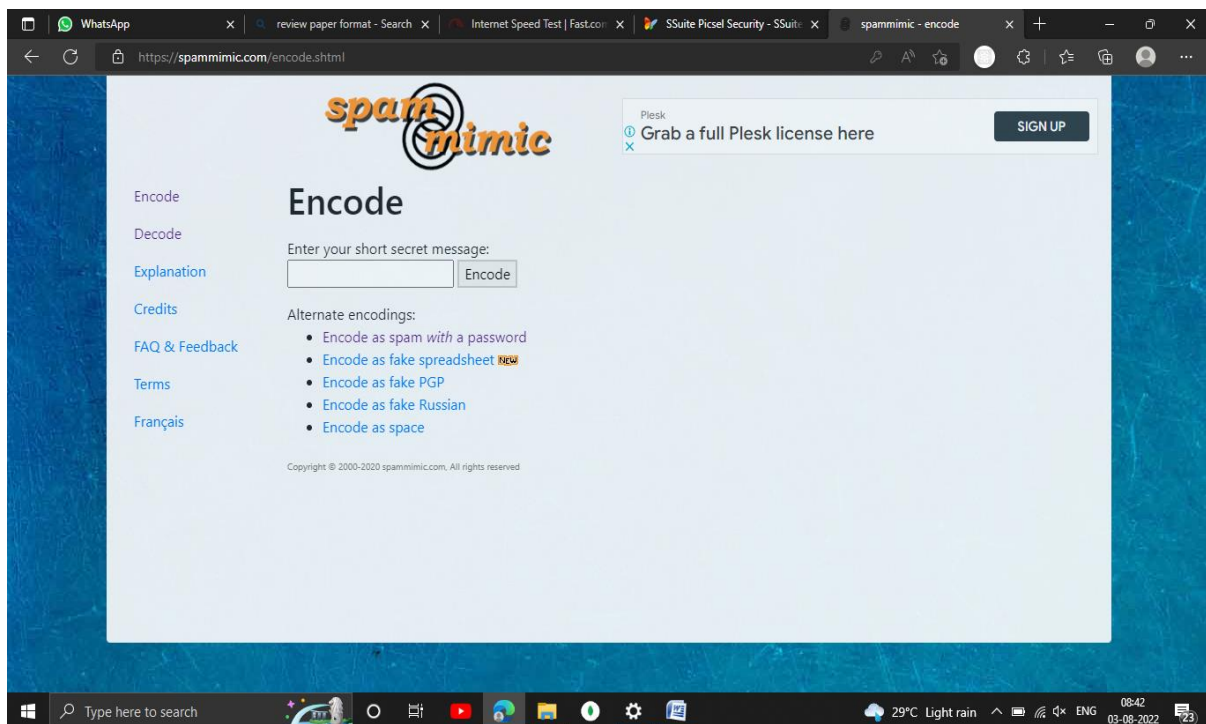
Figure 2 Text Steganography tool:- span mimic

2. Write the message you want to encode

Figure 3 Text Steganography tool:- span mimic
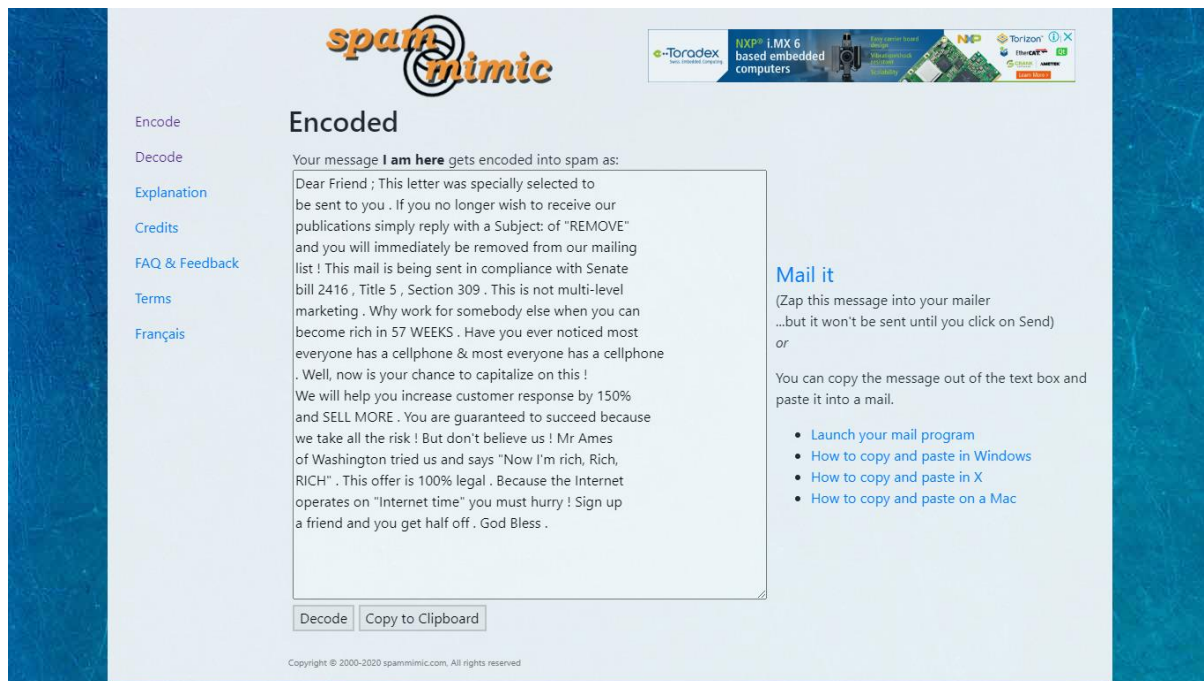
3. Press button and you will see encode message

Figure 4 Text Steganography tool:- span mimic
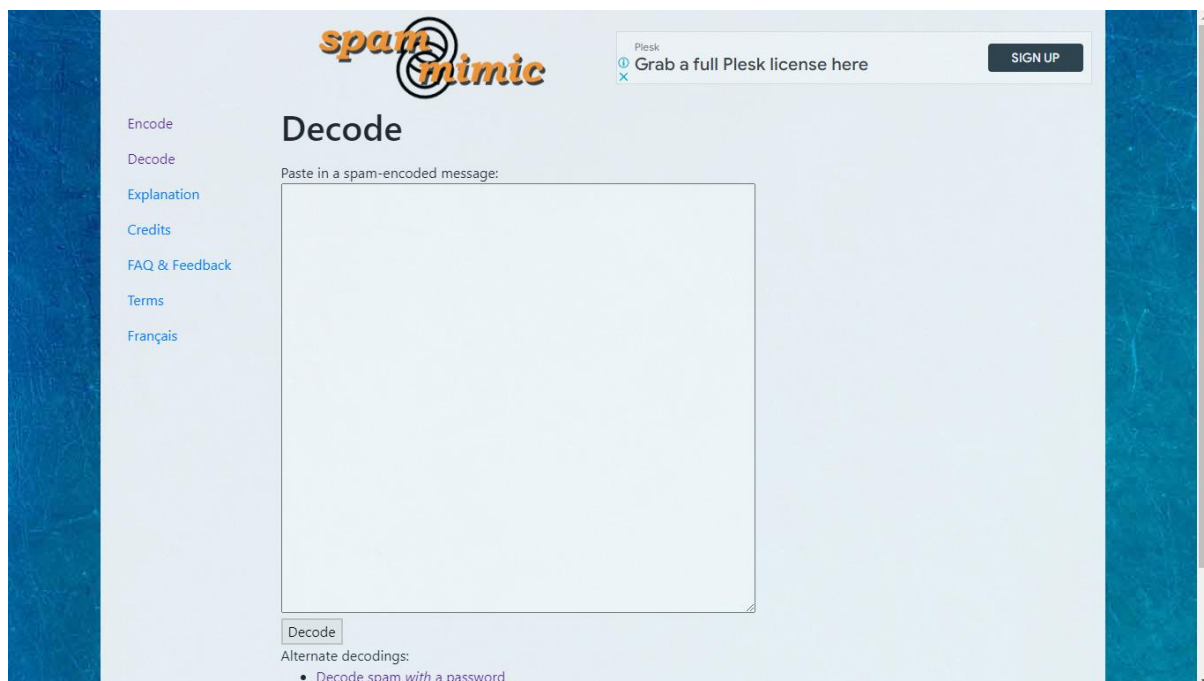
4. Press button and you will see encode message

Figure 5 Text Steganography tool:- span mimic
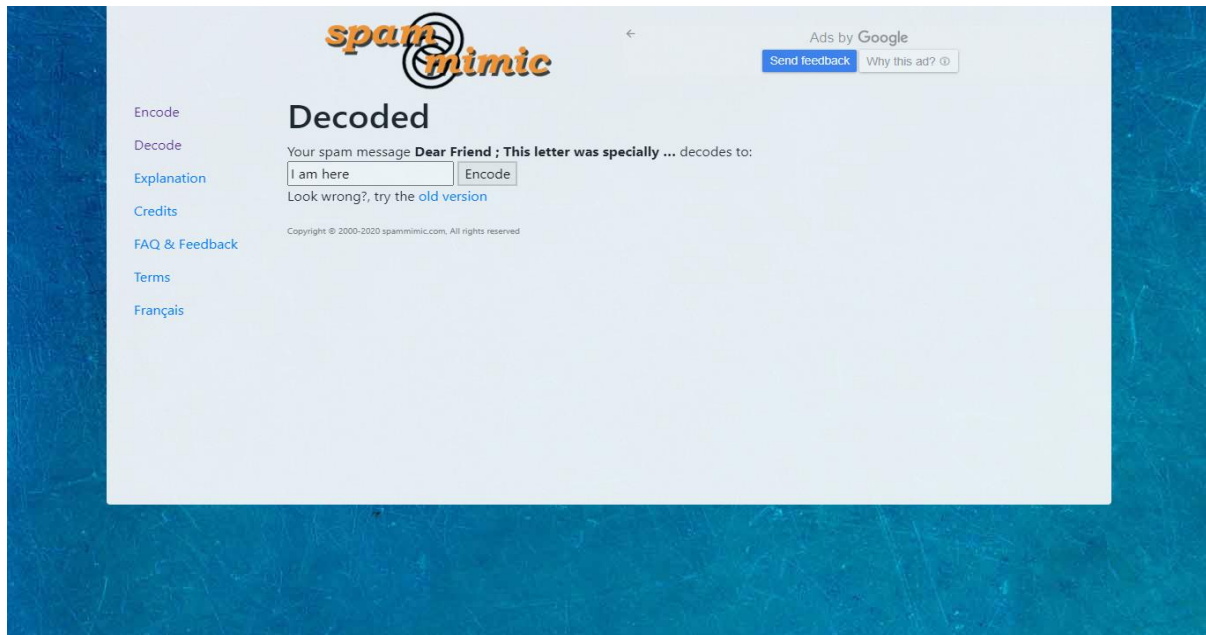
5. Enter the password and encode message

Figure 6 Text Steganography tool:- span mimic

Figure 7 Text Steganography tool:- span mimic

6. Press button and you will get original text

Figure 8 Text Steganography tool:- span mimic

Analysis:

1. We are able to use span mimic to encode your small texts, emails, and messages with various different methods and also gives you the way to decode the specific encoded format text.

Task 2: Perform Images Steganography using Pelock

- **Website link :- Steganography Online Codec - Hide Message in Image (pelock.com)**

  o Steganographic online codec allows you to hide a password encrypted message within the images & photos using AES encryption algorithm with a 256-bit PBKDF2 derived key.
  o The art and science of hiding information by embedding messages within other, seemingly harmless image files.
  o In this case, the individual bits of the encrypted hidden message are saved as the least significant bits in the RGB color components in the pixels of the selected image.
  o With our steganographic encoder you will be able to conceal any text message in the image in a secure way and send it without raising any suspicion. It will only be possible to read the message after entering the decryption password.

- **Original Text:-** hi i am here
- **Password**: -   ***(123)
- **Original Images**

Figure 9 original image for encryption

Steps:

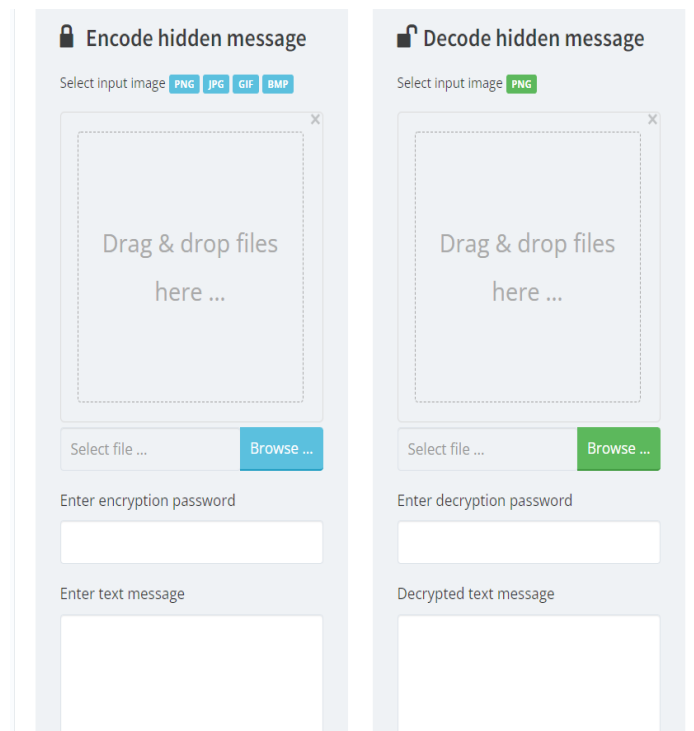1. Website link :- Steganography Online Codec - Hide Message in Image (pelock.com)

Figure 10 Images Steganography tool :- pelock

2. Original Images

Figure 11 Images Steganography tool :- pelock

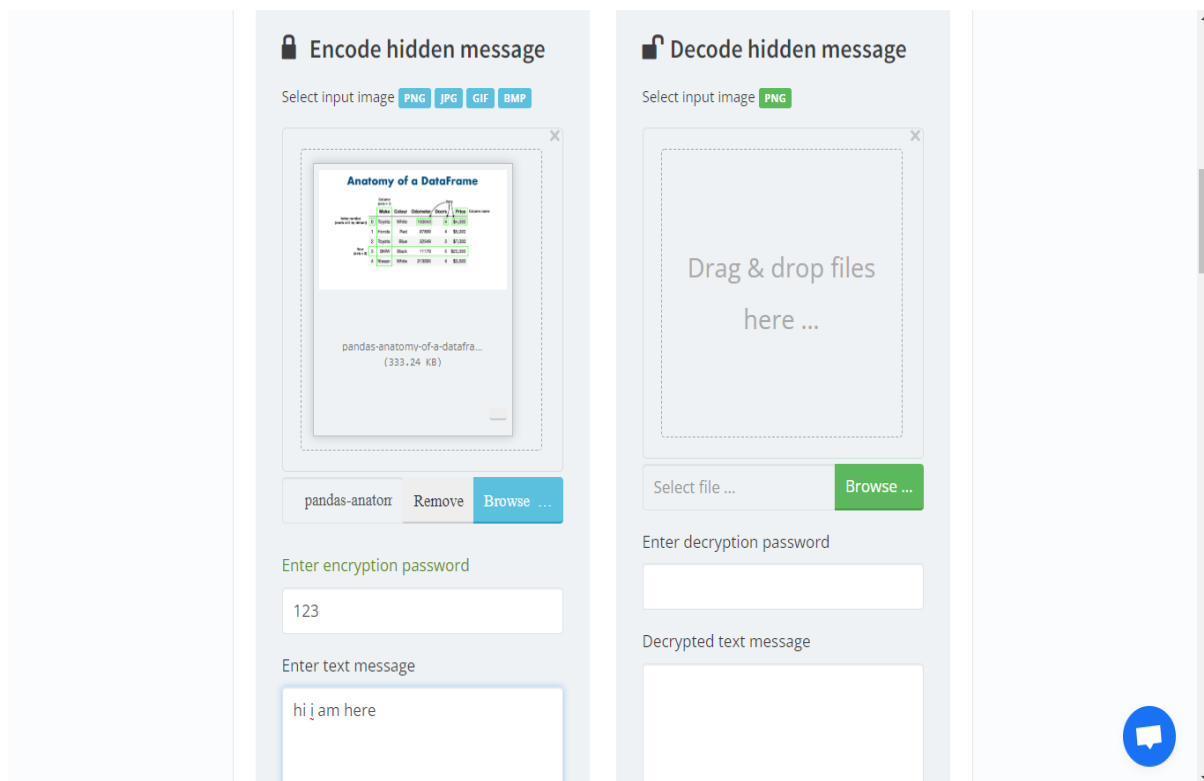**3. Click on brows and upload images and add encode message you want to add**

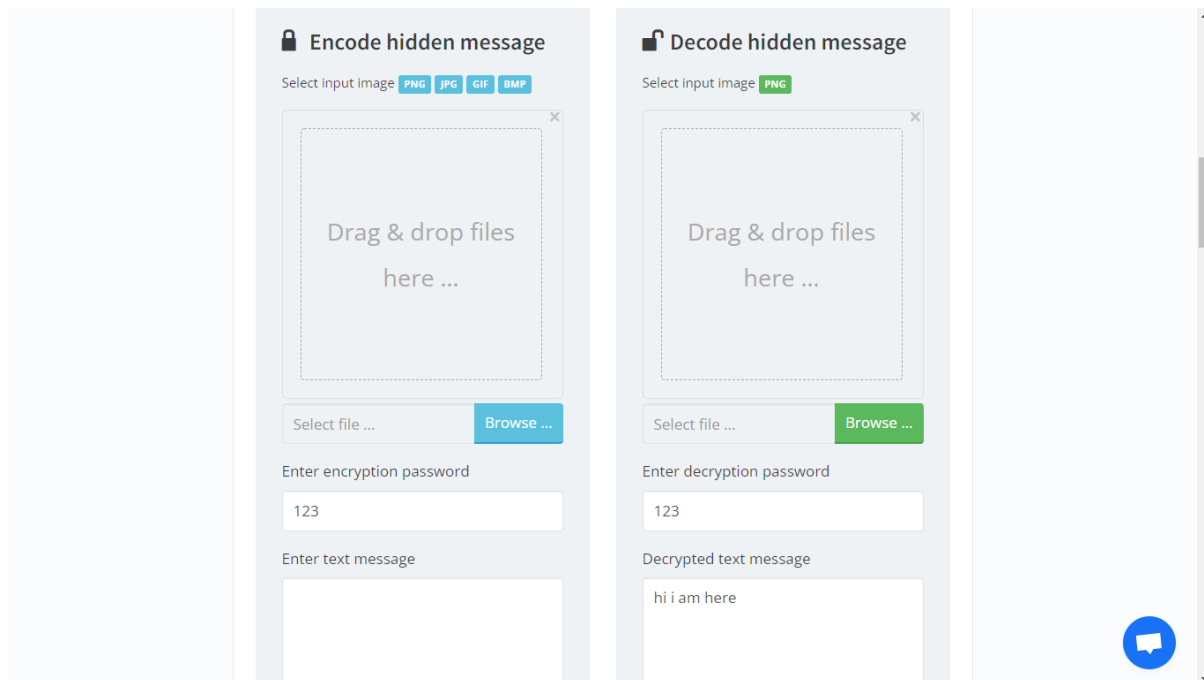
Figure 12 Images Steganography tool :- pelock

4. After encrypted you can download images

Figure 13 Images Steganography tool :- pelock

5. Click brows and add encoded image and write password and you will get message

Figure 14 Images Steganography tool: - pelock

Analysis:

1. While comparing the original file with setgo file (encoded file) we can see there lots of difference in both file
2. File format is different, file size is different and timestamp is different

Similar Tools:
- Camouflage
- SsuitePicsel
- Hide n Send
- Xiao Steganography
- Image stego
- Steghide
- crypture
- SteganographX Plus
- SteganPEG
- Open stego

Task 3: Perform Audio Steganography using STEGONAUT

- Website link :- STEGONAUT - Audio Steganography Tool
  - STEGONAUT use for hide information in audio
  - Hide secret text messages inside MP3 files. Just choose an MP3 of your choice, type in your message, and a new MP3 file will be created. To uncover the message, load the newly created file again. Optionally, you can choose to encrypt the message with a password for additional layer of security.
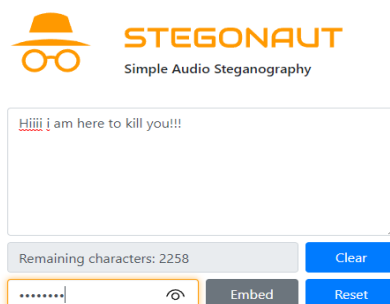
Steps:

- Visit Website link :- STEGONAUT - Audio Steganography Tool
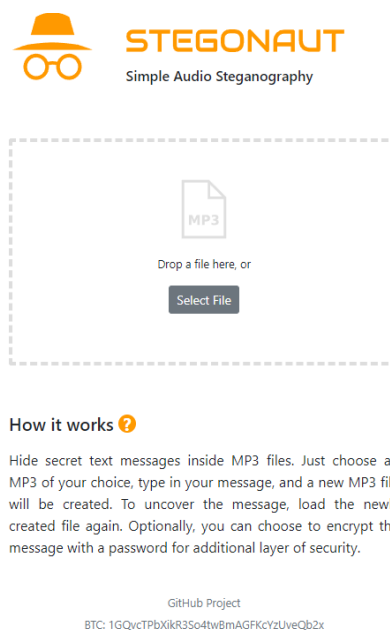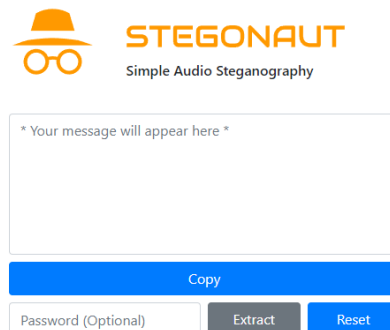
Figure 15 Audio Steganography tool: - STEGONAUT

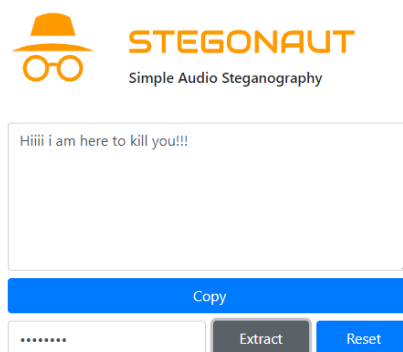1. Upload your audio and write down password and message

Figure 16 Audio Steganography tool: - STEGONAUT

2. Go to extract selection and write down password and you will get your meassage

Figure 17 Audio Steganography tool: - STEGONAUT

Figure 18 Audio Steganography tool: - STEGONAUT

Analysis:

1. We are using STEGONAUT for Audio Steganography. With this tool we can Hide secret text messages inside MP3 files with password and when can see different in MP3 file size.
2. When we need hide text we can use encrypted MP3 file to get hidden message.

Similar tools:

- Wavstag
- Sonic visualizer
- Steghide

Task 4: Perform Video steganography using OpenPuff

- Download link **:- Video steganography tool OpenPuff**
- Open Puff Steganography tool which use for video steganography. Open Puff is a freeware data encryptor app that's been categorized by our editors under the data encryption software category and made available by Cosmo Oliban for Windows

Step: -

1. Download and install OpenPuffVideo Steganography tool.
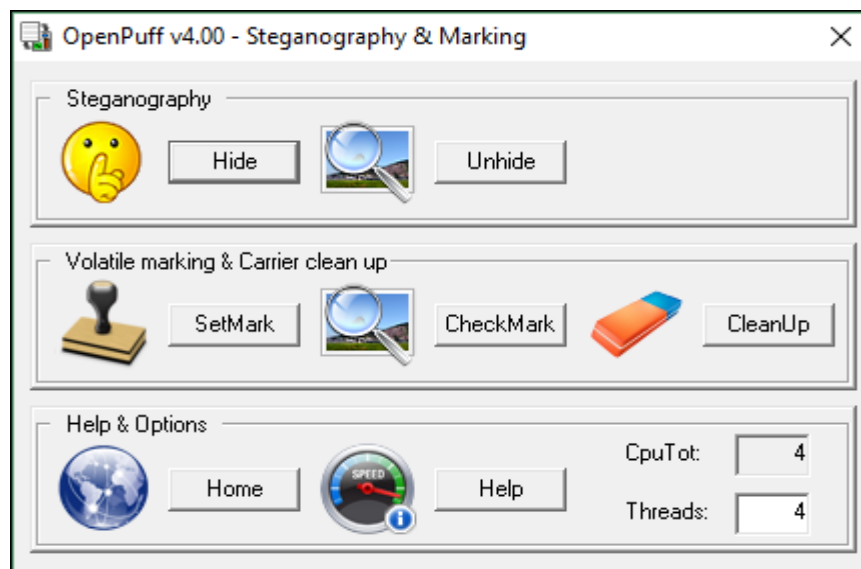
Figure 19 Video steganography tool:- Open Puff

2. click on Hide button to enter the main interface of Open Puff.

3. Here in this window the interface is divided into 4 sections for performing different tasks. In the first section set the desired password for unhiding your data.
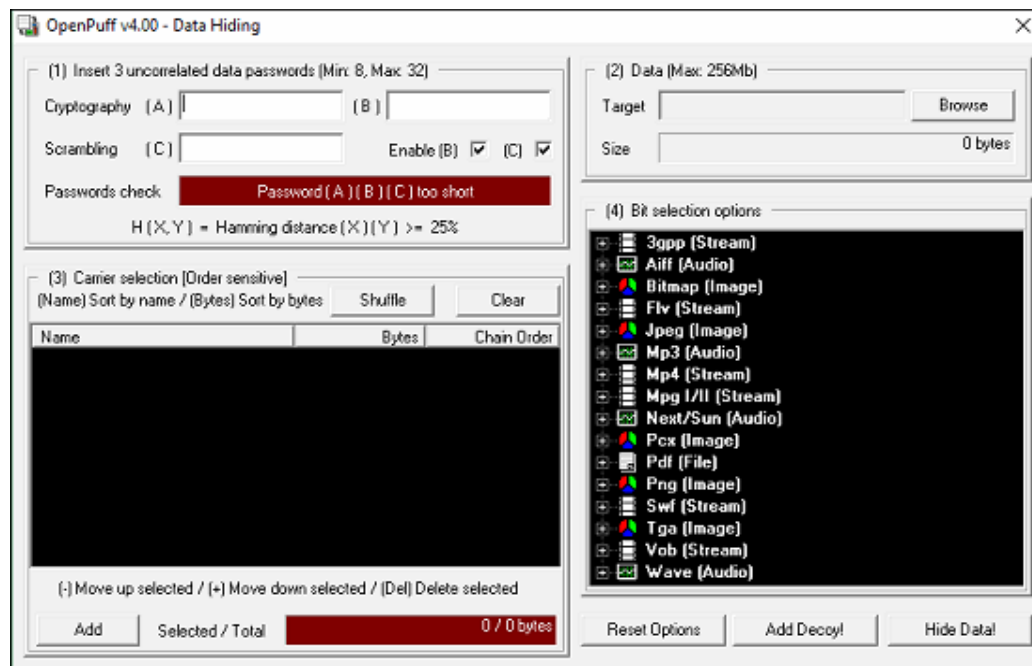
Figure 20 Video steganography tool:- Open Puff

4. In Carrier Selection provide the carrier video file that you want to use for hiding your messages/documents.
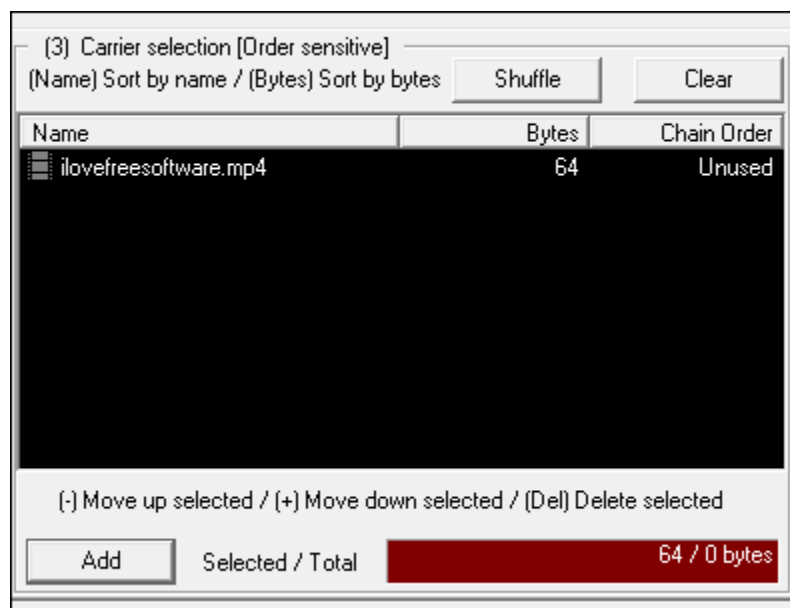

Figure 21 Video steganography tool:- Open Puff

5. Provide the target file that you want to hide in carrier video file and then hit the Hide Data button to complete the process.
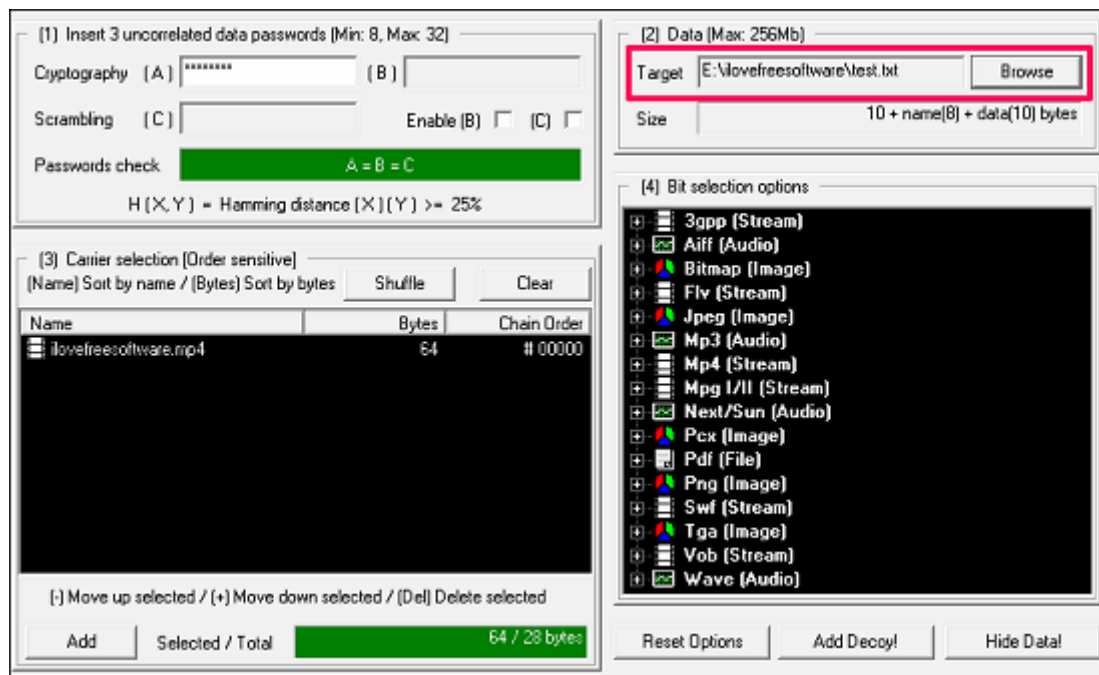

Figure 22 Video steganography tool:- Open Puff

6. After going through the above steps, a final dialog will appear, asking you to specify the folder where you want to save the final video file that contains your hidden messages and documents. This will save the video file, with your files hidden in it.

7. For extracting the data from an existing carrier video file/files that you created, the process is almost the same. You just have to select the unhide option from the main window of OpenPuff. Next, provide the password that you set during hiding your file and provide the location where you want to store the extracted file.

Analysis:

1. OpenPuff is a prevailing data hiding application made easy, safe and free that allows you to hide data into encrypted files in order to send it to other users.
2. In this we are using Video to hide our message

Similar Tools:

- Our Secret
- DeEggerEmbeddder
- StegoMagic

Task 5: Perform Folder Steganography using QuickCrypto

- Website link to download tool :-Download QuickCrypto - Free 15 Day Trial Period

- QuickCrypto is advanced Windows based privacy and encryption software. It uses the most powerful algorithms and techniques to ensure your email communication, passwords, all confidential files and information are kept completely secure

Steps:

1. Website link to download tool :- Download QuickCrypto - Free 15 Day Trial Period
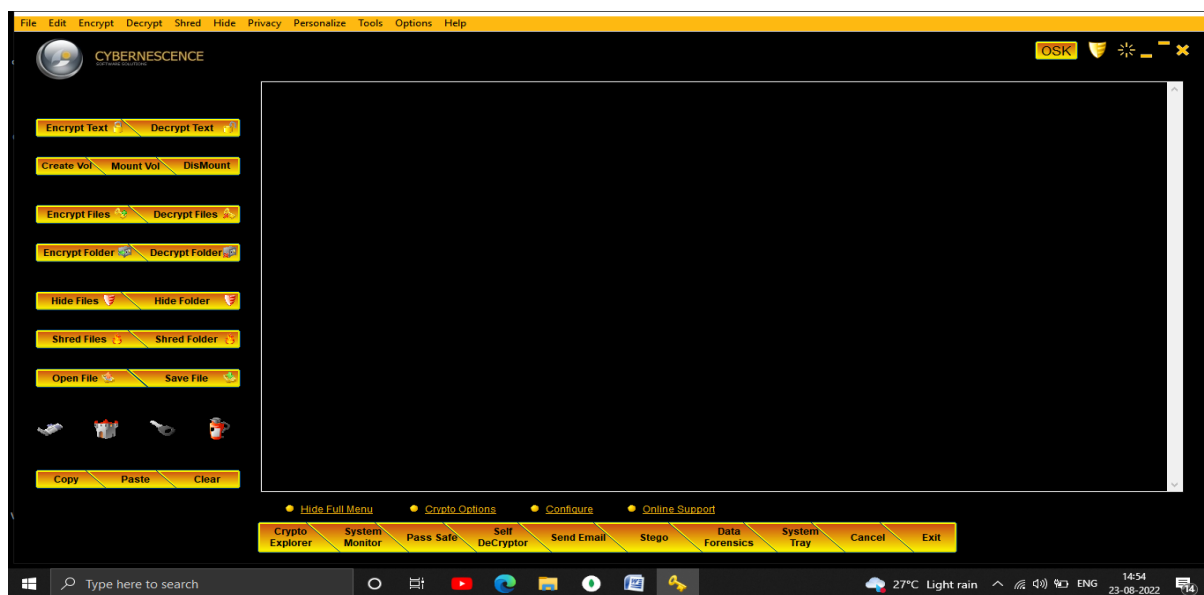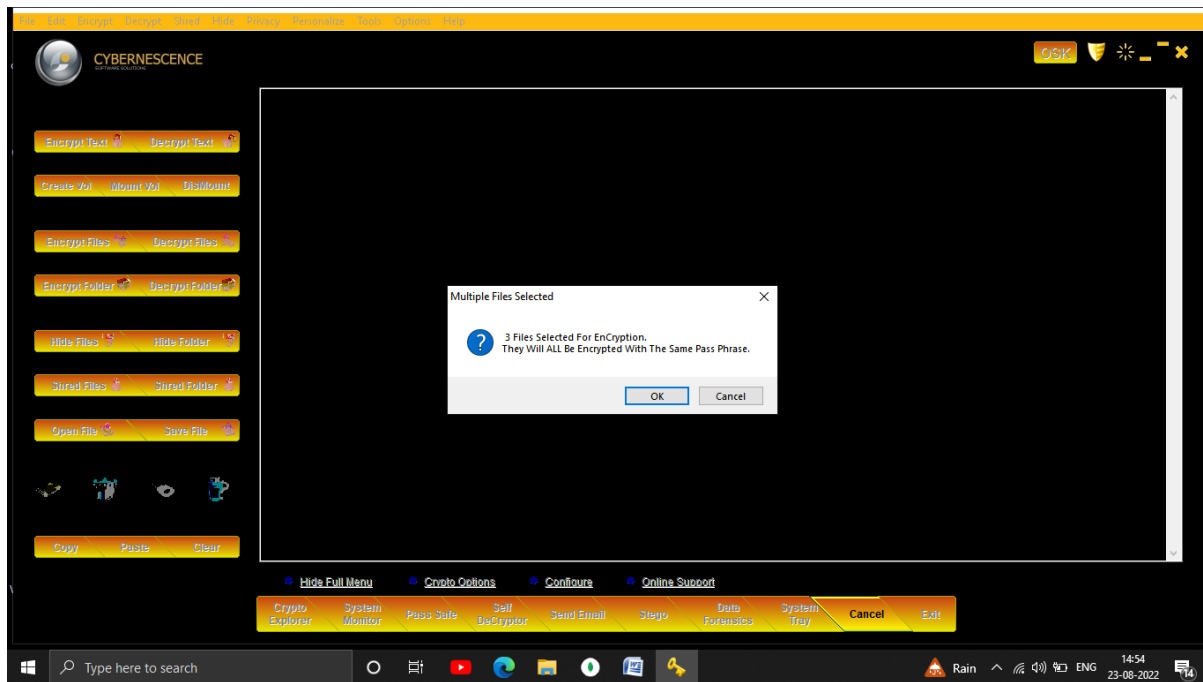

Figure 23 Folder Steganography tool:- Quick Crypto
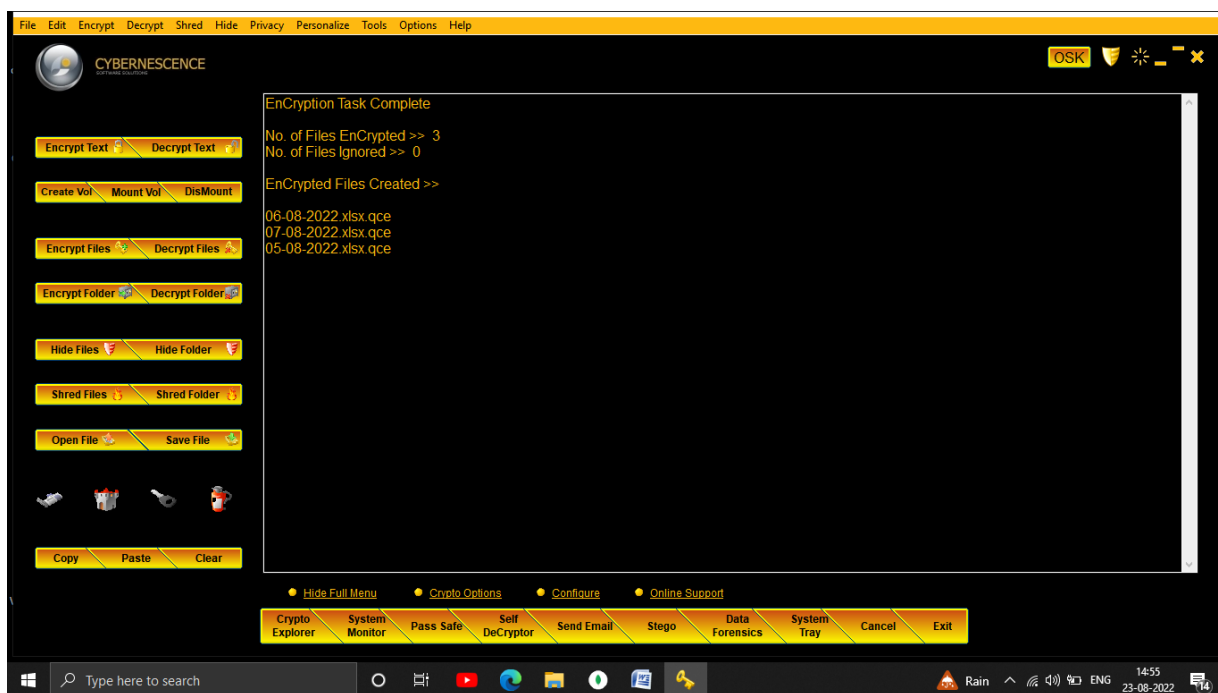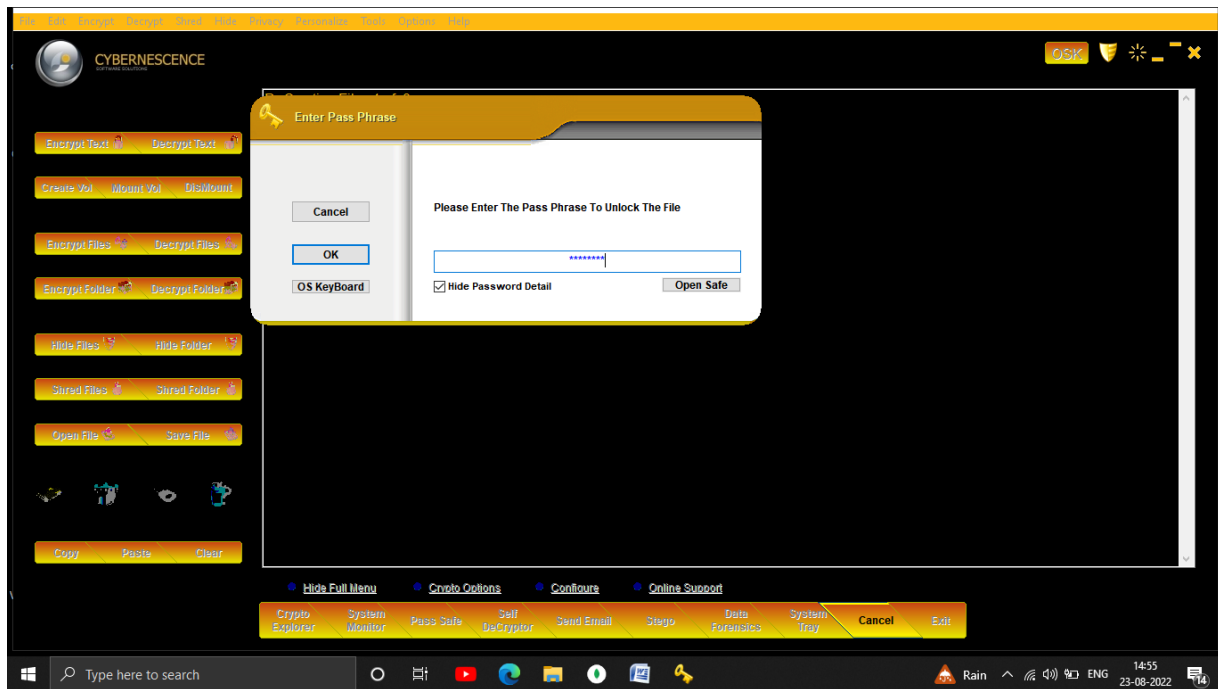
Figure 24Folder Steganography tool:- Quick Crypto

Figure 25 Folder Steganography tool:- Quick Crypto

Figure 26 Folder Steganography tool:- Quick Crypto

Analysis:

1. With the help of quick crypto we are able to do Folder Steganography and it refers to hiding one or more files in a folder. During this we are able to hide folder but still keeps the associated files in its original folder for recovery.

Conclusion:

- Steganography is an effective way of secure communication. You can first encrypt a confidential file and then hide it inside an image of another kind of file before sending it to some other. It will decrease the chances of being intercepted.
- If you just send the file by encrypting it, the attacker will try to decrypt it by various ways. However, if he only finds a normal image file, he'll have no clue.
- This technique is very easy to use but very difficult to detect. It can be used by government organizations to use as the way to send and receive files securely