Experiment No.11

Use Steganography to encode and decode the message using any tool

I. Minimum Theoretical Background

- It is the technique of hiding one message inside other message.

- An encrypted file may still hide information using stegnography,so even if the encrypted file is deciphered, the hidden message is not seen. Special software is needed for steganography.

- Steganography is the art and science of writing hidden message in such a way that no one, apart from the sender and intended recipient, suspects the existence of the message.

- Steganography works by replacing bits of useless or unused data in regular computer files(such as graphics, sound, text, HTML, or even, cipher text, or floppy disks) with bits of different, invisible information. This hidden information can be plain text, cipher text or even images.

- Steganography Process
  - Steganography embeds a secrete message in a cover message, this process is usually parameterized by a stego-key, and the detection or reading of an embedded information is possible only having this key.

    Cover media + secret message + stego key = stego medium

- Advantages:
  - It can be employed by parties who have something to lose should the fact of their secret communication be discovered.
  - Steganography can protect both the message and communication parties.

- Disadvantages:
  - Requires lots of overhead to hide few bits of information.
  - Once the system is discovered it becomes virtually worthless.
  - Hiding capacity is less.
  - Quality of the resultant stego images is a major issue.

- Applications:
  - Used in modern printers.
  - Digital watermarking.
  - Copy write.
  - Convert military operations.
  - To transmit cryptography keys.

II. Procedure

This application will hide data inside an image or extract hidden data from an image, you can either supply the image we are encoding/decoding as a URL or upload an image file.

Encoding of text in Image:

We will encrypt the data before it puts it into the image, this is to insure nobody but the intended parties can extract hidden data from an image, before we can encrypt the data securely we need a key, Password, this is optional.

- Select image as cover media in which the secrete message you have to store
- Give password or key its optional
- Select payload type and enter message
- Click on Submit button and upload the image.

Select a JPEG, AU or WAV file to upload:
Choose File Image.jpg

Password (may be blank):
imp

Payload (select the appropriate radio button to either enter payload text directly or upload a file):
○ Just find capacity of this file
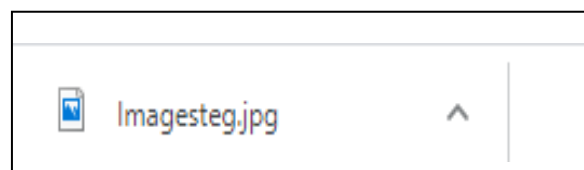⦿ Text

Important message
Hiding this message into the Image file and upload the image

○ File payload: Choose File No file chosen
Submit
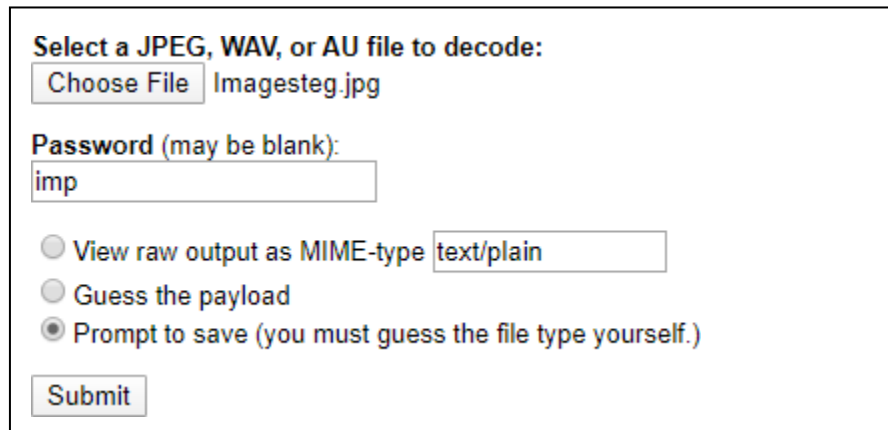
- The uploaded image downloaded in which the secrete message is stored.

Imagesteg.jpg ^

Decoding of Image in text document:

- Choose image to decode:

- Enter Key:

- Then press submit button.

Select a JPEG, WAV, or AU file to decode:
Choose File | Imagesteg.jpg

Password (may be blank):
imp

○ View raw output as MIME-type text/plain
○ Guess the payload
● Prompt to save (you must guess the file type yourself.)

Submit

- Uploaded image is get decrypted and the hidden text get downloaded in out.txt file.

out (1).txt
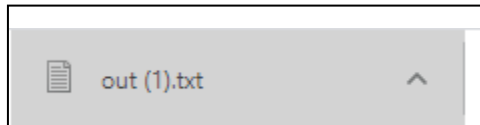
- when you open this file the original file is displayed.

out (1) - Notepad   — □ ×
File Edit Format View Help
Important message
Hiding this message into the Image file and upload the
image

III. Conclusion

Hence we had successfully perform steganography on image and text using tool.

IV. Exercise

Q.1 What is Steganography?

Q.2 What are the advantages of Steganography?

Q.3 Steganography ensures security justify.

Q.4 Write down the applications of Steganography.

Q.5 What is header and payload?

Answers

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Answers

Network and Information Security(22620)

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Process Related (15)	**Product Related (10)**	**Total(25)**	