



STEGANOGRAPHY - A TECHNIQUE TO HIDE THE DATA

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- Earlier invisible ink was used to write information on pieces of paper
- Head of messengers were shaved so, a message could be written on it
- Wax tablet was peeled on which message was to be written & refilled
- Null cipher sent by the German embassy in World War I

**"PRESIDENT'S EMBARGO RULING SHOULD HAVE IMMEDIATE
NOTICE. GRAVE SITUATION AFFECTING INTERNATIONAL LAW.
STATEMENT FORESHADOWS RUIN OF MANY NEUTRALS. YELLOW
JOURNALS UNIFYING NATIONAL EXCITEMENT IMMENSELY."**

(Taking the first letter in each word of message reveals the hidden text.)

" PERSHING SAILS FROM NY JUNE 1"


STEGANOGRAPHY - A TECHNIQUE TO HIDE THE DATA

- Since the rise of the internet one of the main elements of data information technology and communication has been the security of data.
- Cryptography was made as a technique for securing the secrecy of communication and many different strategies have been created and developed to encrypt and decrypt information to keep the message secret.

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- Unfortunately, sometimes we can't hide the information. One of the oldest technique used to hide the information is Steganography. Steganography is the act of concealing or hiding a mystery message within something not secret.
- Steganography word is derived from Greek, literally means Covered Writing. Steganography is the art of hiding the existence of data in another transmission medium to achieve secret communication.

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Cybercriminals use steganography to hide stolen information or malicious code in pictures, audio documents and other media.

The most famous form to hide the data that is frequently used for Steganography are digital images, as they are also the most dominant forms found on the internet.

Steganography has been used for centuries, but these days, hackers and IT pros have digitized it to do some pretty creative things. There are many apps that can be used for steganography, including Steghide, Xiao, Stegais and Concealment.

BASIS FOR COMPARISON	STEGANOGRAPHY	CRYPTOGRAPHY
Basic	It is known as cover writing.	It means secret writing.
Goal	Secret communication	Data protection
Popularity	Less popular	More commonly used.
Supported security principles	Confidentiality and authentication	Confidentiality, data integrity, authentication, and non-repudiation.
Implemented on	Audio, video, image, text.	Only on text files.
Types of attack	Steganalysis	Cryptanalysis

× Steganography process :

Cover-media + Hidden data + Stego-key = Stego-medium

× Cover media:

- + It is the file in which we will hide the hidden data
- + Cover-media can be image or audio file.

× stego-key:

- + Cover-media can be encrypted using stego-key:

× stego-medium.

- + The resultant file is of above process called stego medium.

Steganography

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graph TD; A[Steganography] --> B[Hiding in text]; A --> C[Hiding in video]; A --> D[Hiding in image]; A --> E[Hiding in sound file];
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Hiding in
text

Hiding in
video

Hiding in
image

Hiding in
sound file

Now we will learn how to hide the data in the form of

1. Image

2. Audio

Process to hide the data in the form of image

1. Save the image and secret file in one folder.
2. Make a zip file of secret file which is in the form of text.
3. Open command prompt and direct to that folder which contains image and secret file. And use command “dir” to see the files in that folder.
4. Use the below command to create a hidden file
copy /b img.jpg + num.zip img2.jpg
(Here img2.jpg is hidden file)
5. And use 7 zip File manager to see the hidden text.

Process to hide the data in the form of Audio

➤ We want to use multiple applications to hide the data in the form of audio.

1. Coagula Light
2. Audacity

Let's Check Out Some Popular Steganography

Here is a list of the more well-known steganography applications:

- **Image Steganography:** This application is a JavaScript tool used to hide images in other image files.
- **OpenStego:** This program is an open-source steganography tool.
- **Xiao Steganography:** Xiao hides secret files in WAV or BMP files.
- **NoClue:** This application is an open-source tool that hides text information in both video and image carrier files.

CONCLUSION:

I have briefly explained and defined steganography, which is in my opinion an effective tool to do so many things regarding security or reliability in any field of communication . What I mean that , this technique can be used in any section in real life, military, business, educational, governments and more. Also, I have shown various tools and how they function well.

References:

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Thank You