



Text Steganography

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Abstract-*The internet has grown rapidly in recent years. This growth has increased the demand for technique that can ensure information security. Steganography is the art of hiding the fact that communication is taking place, by hiding the information in other information. Steganography is introduced to hide the existence of the communication by concealing a secret message in an appropriate carrier like text, image, audio, video. Steganography is often being used together with cryptography and offer an acceptable amount or privacy and security. In this paper we discuss different type of text steganography techniques and methods.*

Keywords- *Text Steganography, Cryptography, Data Hiding, Word Spelling*

I. INTRODUCTION

Various technique including cryptography, steganography etc are used to secure information on the internet. Using cryptography the data is transformed in to some other form then the encrypted data is transmitted. The steganography is a technique for securing information by hiding it in some other medium such that the existence of information is concealed to everyone except for the intended sender and receiver.

Steganography refers to the art or science of hiding secret information in some other media. The information to be hidden is called secret message and the medium in which the information is hidden is called the cover medium. The cover document containing hidden message is called as stegodocument. The algorithm used for hiding the message in cover medium is called as stego system.

Four basic types of steganography are as the following:

- | | |
|---------------------------------|---------------------------------|
| A. <i>Text steganography</i> | C. <i>3.Audio steganography</i> |
| B. <i>2.Image steganography</i> | D. <i>4.Video steganography</i> |

A steganography technique that uses text as the cover media is called a text steganography it is most difficult type of the steganography because text files have a small amount of redundant data to hide a secret message. A steganography technique uses images as the cover medium is called an image steganography. This technique is widely used.

II. METHODS OF TEXT STEGANOGRPAHY

A. *Syntactic method*

Moerland discussed about text steganography by using punctuation signs such as full stop(.),comma(,),semi colon(;),quotes(" ")etc in the text of encoding a secret message. The use of punctuation sign is quite common in the normal English text and hence it becomes difficult or the intruder to recognize the presence of secret message in the text document.

- 1) *Advantage:* The amount of information to hidden the method is trivial.
- 2) *Disadvantage:* Small reader can find hidden data

B. *Line shifting method*

In this method the line of text are vertically shifted to some degree and information is hidden by creating a unique shape of a text.

- 1) *Advantage:* This method is suitable only for printing text in printing text OCR(character recognition)never used.
- 2) *Disadvantage:* When OCR applies hidden data lost

C. *Word shifting*

In this method the information is hidden by shifting the words horizontally or by changing the distance between the words.

- 1) *Advantage:* This identify less because of change of distance between words to fill line is quite common.
- 2) *Disadvantage-*If anyone aware about the algorithm that related to word shifting distance, then easily get hide data.

D. *Abbreviation*

In this method very little information hidden in the text, example only a few bytes of data can be hidden.

- 1) *Advantage*: this methods is because it's a kind of any abbreviation present
- 2) *Disadvantage*-it is limited only for small data means out of large data only small part of data can be hidden.

E. Synonym method

In this method certain words along with their synonyms are used to hide the secret message in the text.

American English	British English
1.Account	1.Bill
2.Candy	2.Sweets
3.mail	3.Post
4.Stove	4.Cooke
5.faculty	5.Staff
6.Movie	6.Film
7.Gas	7.Petrol

- 1) *Advantage*: this is a best method among above methods because in this method we use different terms of words that hide data properly.
- 2) *Disadvantage*: this type of method is little bit time consuming because we get search word by word and replace it until we get the result.

F. Word spelling

This method is used for hiding data in English text. In this method word spelling in US English are spelt different from UK English.

American English	British English
Favorite	Favourite
Fulfill	Fulfil
Center	Centre
Dialog	dialogue
Tire	Tyre
Check	Cheque

- 1) *Advantage*: This is also a good method for data hiding not only for electronic document but also for printing text. In this method hidden data is destroyed.
- 2) *Disadvantage*: This is less secure than new synonyms text method because little change in spelling not hides data properly

III. CONCLUSION

For the text steganography various methods have been proposed to hide data in text and each method have respective capability to hide data in text. By using line shifting method we can hide the large amount of data, but line shifting method only capable for printed text because in this method. Other than printed text character recognition program(OCR)is used and hidden information get destroyed. Word shifting method is quite useful to hide data. Syntactic method used in wars to send important information and hide small amount of data using (.),(.),and hide data in (0) as (.)and (1) as(,),Semantic method is efficient and its security is higher than the previous method because there are no such easy method to detect hidden data present. Abbreviation method is built it own way, it is safe method as compare to the above method. We can compare word spelling method and the new synonym text method based on same concept. Both these method uses the UK English and the US English. Word spelling method is less secure because there is small difference is the spelling of UK English an US English and the new synonym method is best among the all text steganography method.

REFERENCES

- [1] K.BENNETT,"*linguistic steganography: survey, analysis and robustness concern for hiding Information in text*",Purdue University,Cerias tech .report 2004-13.
- [2] M. Hassan Shirali-Shahreza , and Mohammad Shirali-Shahreza,"*A new synonym text steganography on international conference of intelligent information hiding and Multimedia signal processing*
- [3] N.J Hopper, *towards a theory of steganography*,ph.d Dissertration school of computer science, carnegie mellon university,pittsburgh,P\pa,usa,July 2004
- [4] T. Moerland, "*Steganography and Steganalysis*", www.liacs.nl/home/tmoerlan/privtech.pdf, May 15, 2003.
- [5] S.H. Low, N.F. Maxemchuk, J.T. Brassil, and L. O'Gorman, "*Document marking and identification using both line and word shifting*", Proceedings of the Fourteenth Annual Joint Conference of the IEEE Computer and Communications Societies (INFOCOM '95), vol.2, 2-6 April 1995, pp. 853 – 860
- [6] W. Bender, D. Gruhl, N. Morimoto, and A. Lu, "*Techniques for data hiding*", IBM Systems Journal, vol. 35, Issues 3&4, 1996, pp. 313-336.