

Chapter 8

Data Encryption and Hiding for Secured Data Transmission

A. V. Senthil Kumar

Hindusthan College of Arts and Sciences, India

Chennamma H. R.

JSS Science and Technology University, India

Manjunatha Rao

Dr. Ambedkar Institute of Technology, India

Malavika B.

Hindusthan College of Arts and Science, India

ABSTRACT

The secured data hiding for future transfer is an application proposed for a secured data transmission in which the application alters the originality of the file to an encrypted form and embeds that file into a video file which will be transferred. The motive of the application is to provide the ease for the user to pass the information with the encryption standards and algorithms then store the information in an unreadable format. In the next phase, the application has a reverse process where the embedded video can be de-embedded, and the encrypted file can be decrypted to its actual data upon proper user request. In the process of encryption and decryption, the application should confirm the authenticity of the user. The application is generated using the tiny encryption algorithm to encrypt the data. This algorithm is a 64-bit block cipher with a variable length key. The tiny encryption algorithm is used because requires less memory, and as a compliment, it uses only simple operations; thus, it is easy to implement.

INTRODUCTION

The world is revolving around the data, everything is data from the tiny dust to the huge planets every single atom is data. The data have a vital part in the human life. By means of the decade passes the data increases when the data increases the complexity becomes a threat. In earlier days the communication was done face to face as the time moved the technologies grow wider and many more developments were done. In old times, people used to share the information by talking to each other, and by painting pictures, later it changed to letters and books (M. Hussain, 2018). That was the time of learning new languages, people learned to write and read the paper materials (S. Manimurugan, 2020). Then it became a decade of letters and envelopes, people initially made use of pigeons to give the letters to the expected

DOI: 10.4018/978-1-6684-3991-3.ch008

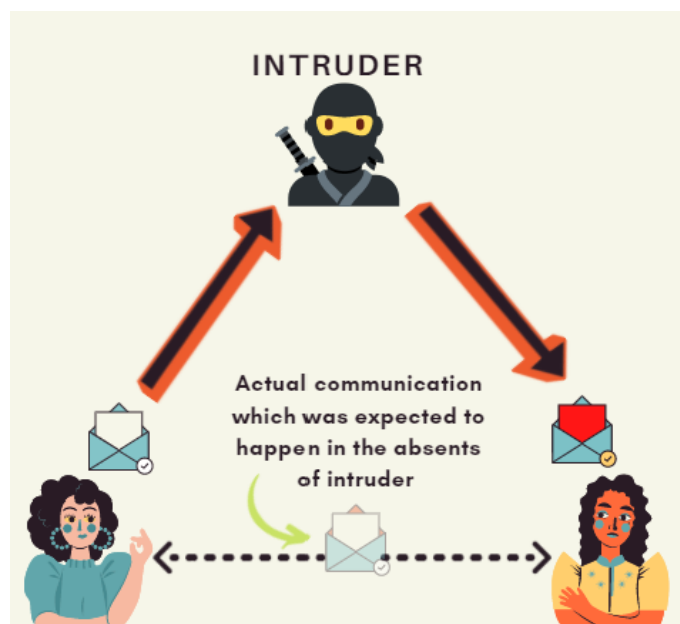
recipient. After that globe was on another pace to used postal addresses to send the letters. It was the method for a long time (A. K. Sahu & G. Swain, 2019).

Subsequently the letter communication changed to the telecommunication, there arrived the telephone then steadily the telephone was developed to the mobile phone. And when the computer arrived the importance of data increased, as computer needs data for processing. In simple words the data is considered as a raw fact. When data is used for communication, there exists a threat or a vulnerability on the security of the data. This security threat needs an appropriate solution (S. Almutairi, 2019). Thus, implementation of a secure transaction is needed. Data security is the exercise of protective virtual data from a not authorised access, exploitation, or robbery during its whole procedure. It's an idea that encompasses each thing of data safety from the bodily safety of hardware and garage gadgets to organizational and admission controls, in addition to the rational safety of software program applications(V. Tyagi, 2012). It additionally consists of administrative guidelines and measures. The data security has a next level as data hiding.

Data hiding is a software program improvement approach specially utilized in item-orientated programming to cover inner item particulars (statistics contributors). Data hiding guarantees extraordinary statistics get right of entry to elegance contributors and defends item truthfulness via way of means of stopping accidental or supposed variations. When a communication is performed, suppose that a confidential document is being passed from person A to person B. If person A is sending that document as a simple word file, anyone in the network can perform social engineering and view, manipulate or change the destination and send that file to anyone the intruder thinks. This is why the data security is important (OUSLIM Mohamed, 2013).

Figure 1 illustrates an unsecured data communication. The intruder can manipulate the data by interrupting inside the network. The straight arrow denotes the actual communication which might have happened if the data communication was secured.

Figure 1.



18 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:
www.igi-global.com/chapter/data-encryption-and-hiding-for-secured-data-transmission/306863

Related Content

Android Malware Detection Approach Using Stacked AutoEncoder and Convolutional Neural Networks

Brahami Menaouer, Abdallah El Hadj Mohamed Islem and Matta Nada (2023). *International Journal of Intelligent Information Technologies* (pp. 1-22).

www.irma-international.org/article/android-malware-detection-approach-using-stacked-autoencoder-and-convolutional-neural-networks/329956

Combating Antimicrobial Resistance (AMR) With Machine Learning: Case Studies and Success Stories

Siri Niharika Narra, Deepak Durga Prasad, Sowmya Sri Thatikonda and Zita Zoltay Paprika (2025). *AI-Driven Breakthroughs in Antimicrobial Resistance* (pp. 153-168).

www.irma-international.org/chapter/combating-antimicrobial-resistance-amr-with-machine-learning/374860

An Ontology Based Model for Document Clustering

U. K. Sridevi and N. Nagaveni (2011). *International Journal of Intelligent Information Technologies* (pp. 54-69).

www.irma-international.org/article/ontology-based-model-document-clustering/58056

Teaching and Learning Strategies Using AI

(2025). *AI-Driven Learning and Engagement in Higher Education* (pp. 201-222).

www.irma-international.org/chapter/teaching-and-learning-strategies-using-ai/357437

Assistive Technology: Human Capital for Mobility (Dis)abled Workforce Diversity Development

Ben Tran (2014). *International Journal of Ambient Computing and Intelligence* (pp. 15-28).

www.irma-international.org/article/assistive-technology/147381