

Cryptography

Past, Present and Future

Imad Fakhri Taha Al Shaikhli

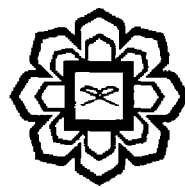


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Cryptography: Past, Present and Future

Imad Fakhri Taha Al Shaikhli



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ABSTRACT

In this article we will talk about the description of trivium and how we will encrypt the plaintext and decrypt the cipher text using that cipher. Also we will introduce into cryptanalysis of Trivium. Moreover, we will describe RABBIT stream cipher and its cryptanalysis.

DESCRIPTION OF TRIVIUM

Trivium is a hardware oriented synchronous stream cipher. It was designed as an exercise in exploring how far a stream cipher can be simplified without sacrificing its security, speed or flexibility. It allows for highly parallelized implementations, making it probably the best performing hardware submission where speed is of interest. Trivium was designed in a very simple design with apparently low security margin. Due to this factor it is more likely to be vulnerable and possibly to be attacked. Trivium generates up to 2^{64} bits of key stream from 80-bit secret key and 80-bit initial value (IV). Its proposed design contains a 288-bit internal state denoted by $(S_1 \dots S_{288})$. The key stream generation consists of an iterative process which extracts the values of 15 specific state bits and uses them both to update 3 bits of the state and to compute 1 bit of key stream. The state bits are then rotated and the process repeats itself until the