1. Symmetric Encryption, Block Ciphers and Stream Ciphers

Learn the fundamentals of symmetric encryption, as well as the differences between block ciphers and stream ciphers, and their respective modes of operation. This lesson will not go too much in depth to keep these lessons simple, so I highly recommend you to explore each concept in your own time. I'll also provide some resources that I deemed are insightful.

1 Learn

1.1 Symmetric Encryption

The method where encrypting plaintext into ciphertext and decrypting ciphertext back into plaintext **using a shared secret** is called symmetric encryption. We can think of a simple scenario where Alice and Bob agree upon a shared key and an algorithm, and then they use the key to encrypt and decrypt the information they want to share with each other.

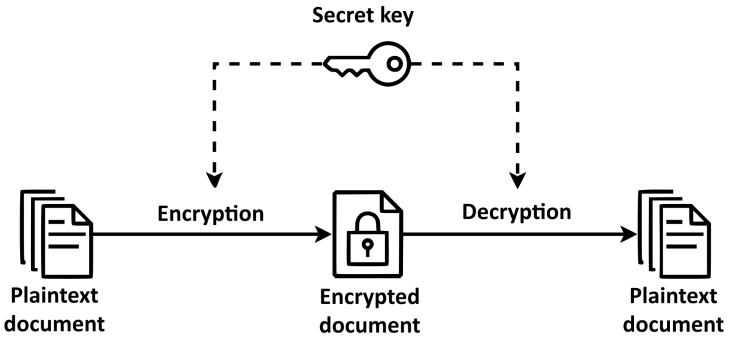

Figure 1: Symmetric encryption process

Over the course of history we've developed a plethora of different algorithms, a lot of them now are deprecated due to security flaws. Most popular ones, however, that we still use and consider secure are AES (also known as Rijndael), ChaCha20 , Camellia , Twofish , and a couple of others. You may have also heard about RC4 , DES and 3DES but they were proven to be insecure and deprecated.

1.2 Common uses of symmetric encryption

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1.3 Risks associated with symmetric encryption

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1.4 Block ciphers

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1.5 Stream ciphers

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2 Practice

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