

An introduction to computer cryptography

A book by Behrad.B([TadavomnisT](#))

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Introduction:

Cryptography is one of the most important branches of science that are widely discussed in computer science today. In truth cryptography is nothing but mathematics in a specific type of subjects that will provide us approaches in order to formulate data mathematically to hide the plain data within a math problem. This will lead us into privacy and security. In this book I intend to introduce computer cryptography from the scratch, and explain it's concepts from the absolute basics. I am not an expert in this line of work nor academically inclined, but I experienced cryptography in practice, and I hope to be able to share my limited knowledge with others by means of this book.

Behrad.B

Chapter 1: What is cryptography?

1.1 What is the concept of cryptography?

1.1.1 Encryption / Cipher

1.1.2 Decryption / Decipher

1.2 Why is cryptography such an important matter?

1.3 A few quotes on cryptography

“Cryptography shifts the balance of power from those with a monopoly on violence to those who comprehend mathematics and security design.”

— Jacob Appelbaum

“Cryptography is the ultimate form of non-violent direct action.”

— Julian Assange

“One must acknowledge with cryptography no amount of violence will ever solve a math problem.”
— Jacob Appelbaum

“There are two kinds of cryptography in this world: cryptography that will stop your kid sister from reading your files, and cryptography that will stop major governments from reading your files.”
— Bruce Schneier

“Cryptography is the essential building block of independence for organisations on the internet, just like armies are the essential building blocks of states, because otherwise one state just takes over another.”
— Julian Assange

“When cryptography is outlawed, bayl bhgynjf jvyy unir cevinpl.”
— John Perry Barlow

“Bitcoin was created to serve a highly political intent, a free and uncensored network where all can participate with equal access.”
— Amir Taaki

“Privacy is an inherent human right, and a requirement for maintaining the human condition with dignity and respect.”
— Bruce Schneier

Chapter 2: What is NOT cryptography?!

2.1 Coding / Encoding

2.2 Hash

2.3 Obfuscation

2.4 Steganography

2.5 Compression

Chapter 3: What is Symmetric Cryptography?

3.1 What is the meaning of symmetric cryptography?

3.2 Simple asymmetric encryption examples

3.3 AES?

3.4 DES?

Chapter 4: What is Asymmetric Cryptography?

- 3.1 What is asymmetric cryptography and why it's needed?
- 3.2 Diffie-Hellman
- 3.3 RSA?

Chapter 5: Cryptographic hash

- 3.1 What is a Cryptographic hash?
- 3.2 MD5
- 3.3 SHA
- 3.4 One Time Pad

Chapter 6: Elliptic Curves

Chapter 7: Quantum Cryptography

Chapter 8: Cryptography in practice

- 7.1 SSL

Chapter 9: Cryptocurrency

Chapter 10: Common attacks in cryptography

Codes:

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