Stream Cipher

XOR Cipher (a.k.a Vernham Cipher)

a modern version of Vigenere

Use ⊕ to combine the message and the key

$$E_k(m) = k \oplus m$$

$$D_k(c) = k \oplus c$$

$$D_k(E_k(m)) = k \oplus (k \oplus m) = m$$

Problem : known-plaintext attack

so $k = (k \oplus m) \oplus m$

$$x \oplus x = 0$$

$$x \oplus 0 = x$$