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The security impact of a new cryptographic library

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Abstract: This paper introduces a new cryptographic library, NaCl, and explains how the design and implementation of the library avoid various types of cryptographic disasters suffered by previous cryptographic libraries such as OpenSSL. Specifically, this paper analyzes the security impact of the following NaCl features: no data flow from secrets to load addresses; no data flow from secrets to branch conditions; no padding oracles; centralizing randomness; avoiding unnecessary randomness; extremely high speed; and cryptographic primitives chosen conservatively in light of the cryptanalytic literature.

Category / Keywords: implementation / confidentiality, integrity, simplicity, speed, security

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