Keyak v2

Leakage-robust authenticated encryption

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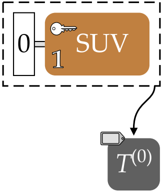
What is Keyak?

An authenticated-encryption scheme submitted to CAESAR
→ based on Keccak ←



- SUV = Secret and Unique Value
- Works in *sessions*

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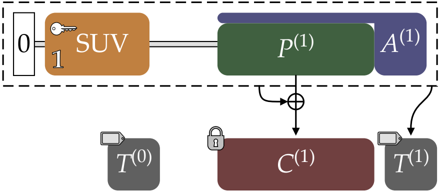

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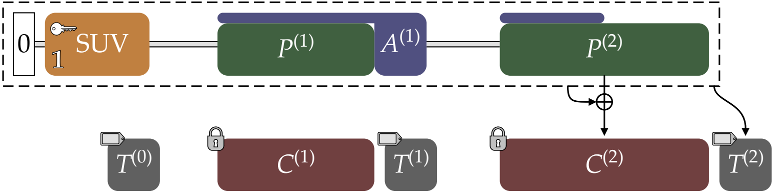

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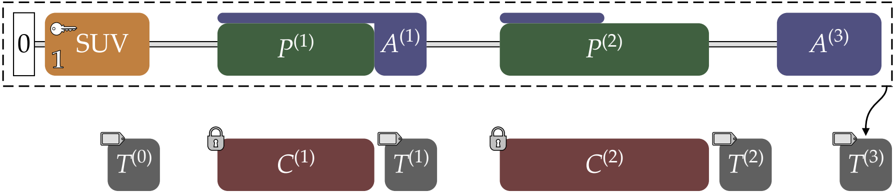

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What is new in Keyak v2?

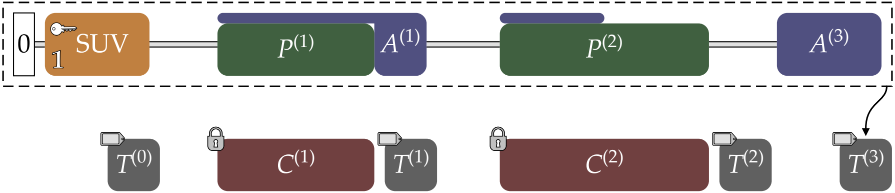
Full-state absorbing! [Mennink, Reyhanitabar and Vizár, 2015]

- More efficient for long messages
    - $\approx 2.25\times$ faster than SHAKE128 [FIPS 202]

Combined output usage (tag/keystream)

- More efficient for short messages
    - 12 rounds of Keccak-*f* per message

Why leakage robustness?



- Provided that **uniqueness** is enforced
- then ...
  - the secret state is a *moving target* [Taha, Schaumont, HOST 2014]

Where to find more information?

http://keyak.noekeon.org/