SIGPwny

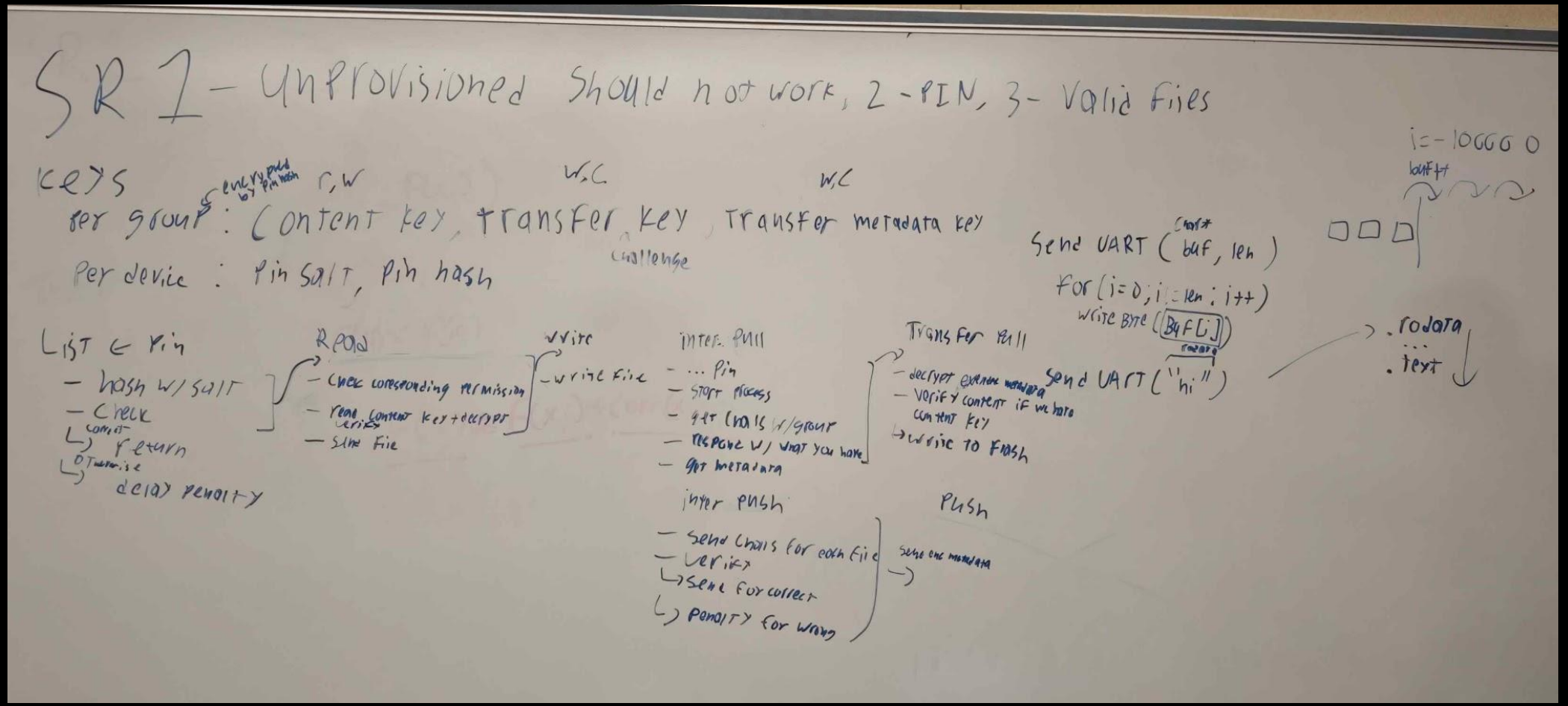
Embedded SP2026 • 2026-01-28

eCTF Design Wrapup

Announcements

- Design Concept Finished
  - Rough sketch finished last meeting on Saturday
- Fault Injection Confirmed!
  - Simple loop increment skip working on MSPM0 target board!
- Design Doc Due Friday
  - Let us know if you would like to help and we can find a topic for you
  - Ideally write the section by tomorrow night so we can edit
- 397 Forms in progress
  - If you are registered but don't have an MSPM0 board, let us know
  - Conversely, if you aren't doing design, try to return your board

Design Outline



Projects Overview

Attack Projects

- SCA
- FI
- Automation (scripting)

Design Projects

- Rainbow
- Compiler Mitigations
- MPU + ECC
- List + Read + Write
- Interrogate + Listen + Receive

SCA Project

- Explore power analysis against crypto algorithms
- AES: wolfcrypt
- Chacha20: wolfcrypt, monocipher

FI Project

- Perform glitch attacks

Automation Project

- Perform automated security requirement checks
- Not sophisticated attacks, but should find common requirement misunderstandings

Rainbow Project

- Perform automated analysis for fault injection attacks

Compiler Mitigations

- Stack zeroing
- Control flow integrity/shadow stack

MPU, ECC

- Enforce memory permissions
- Deter fault injection with ECC on flash and ram

List + Read + Write

- Implement these functionalities from eCTF Spec
- More beginner friendly

Interrogate + Listen + Receive

- Implement these functionalities from eCTF Spec
- More advanced due to the crypto protocol

Next Meetings

2026-01-31 • **This Saturday**

- First subteam meeting
- Also: Nikhil will present AEAD

ctf.sigpwny.com

Meeting content can be found at sigpwny.com/meetings.

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