Password Managers

A way to cope with dozens of online accounts

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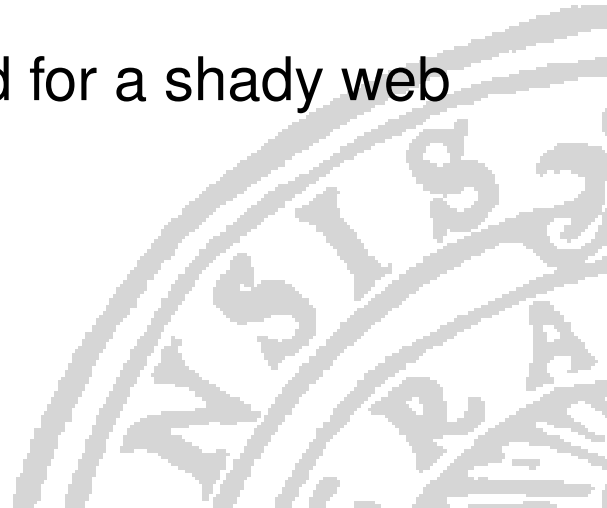
Outline

1. What is the problem?
2. How can one solve it?
3. What actually (not) to do?
4. Making it (more) usable

Reusing physical keys?

Imagine a world in which you would not need a keychain, one physical key for every lock you have access to!

- Would you use the same physical key to your house, your banking deposit, your car and your gym locker?
- So why would you use the same password for a shady web forum and your online banking?



Why reusing passwords is a bad idea

- Your online accounts will be compromised eventually
  - e.g. leaks/breaches/hacks happen all the time, and it will never stop
- One needs a lot of passwords ...
  $\rightarrow$ one for each service
  $\rightarrow$ good passwords are hard to remember
  $\rightarrow$ so you end up making them easy
- Or you end up "inventing the personal password system" that only you can understand
- All these are **toy** security mechanisms for a serious adversary

How can one solve it?

https://imgflip.com/i/2uc7d2

KeePass all the things!

- Use a **unique** and **strong** password for each service you use
- Manage and store them in one central and secure place
- Encrypt them with **one really good password**
  - Generate random passwords
  - If you don't have to remember them you can generate arbitrarily long password, **REALLY** long passwords

    b352cafe513543a7e6e17073aecfa26c55fdadaac
    35ceb3f6fde27a2b7bdd6e6de48575f6123617a41
    c467c0456cb99cc155a1aabbac222a9e4d0c6dc40
    e22f5f6fde27a2b7bdd6e6d2a9e4d0c6d13543ahe

One Option: KeePass

- free and open-source
  - OSI-certified
  - bug-bounties
- easy-to-use and light-weight
  - multiplatform support
  - multiple languages
  - browser add-ons
  - …
- A whole plate of features
  - configurable auto-type
  - multi-user support
  - plugins
  - …

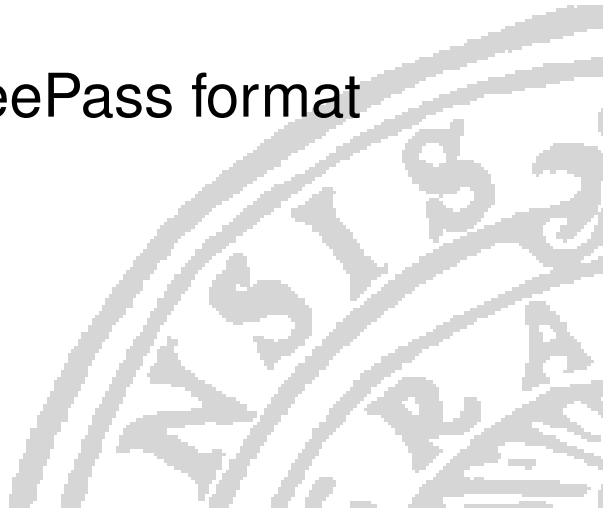
One Option: KeePass

- real desktop client
  - no forced web/cloud BS
  - your master password never leaves your computer/device
- A single encrypted file as database
  - everything gets encrypted
- Unlock via
  - Master password
  - Windows account
  - Key-file
- strong encryption (e.g. AES-256)
  - for more see

    https://keepass.info/help/base/security.html

Another Option: KeePassXC

- KeePass is developed in C#, non-native execution on Linux/MacOS
  - can be run through the Mono runtime libraries, but no native look & feel, auto-type etc.
- KeePassXC is developed in C++ with native cross platform support
- Completely compatible with the original KeePass format
- not as feature rich, no plugins



What actually (not) to do?

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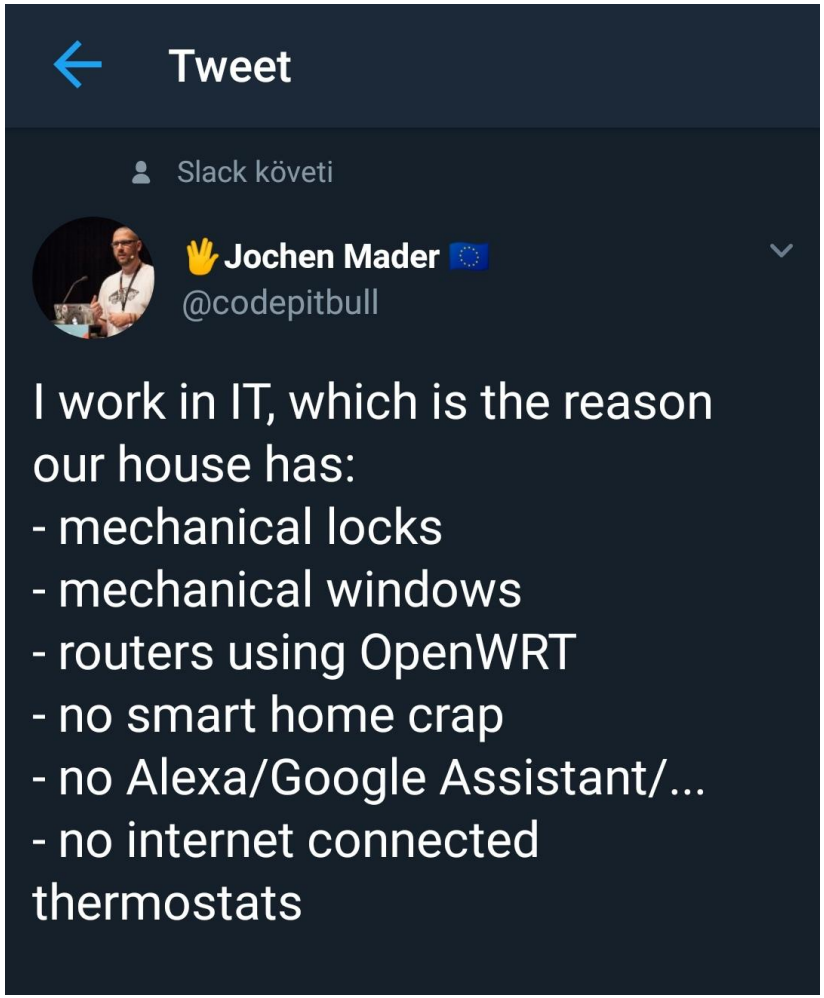

What to store, what not?

- Generally: Everything
- SSH key phrases + Key Agent feature
- Exceptions:
  - Email (the root of your digital life)
  - Banking
  - Anything super important
- Don’t put all your eggs in one basket
  - Security in depth

Multi-Device Synchronization

Multiple options, non is KeePass specific:

- Synchronize with your favourite cloud solution between devices (e.g. Google, OneDrive or Dropbox)
- Host your own ”cloud” solution for synchronization (e.g. Nextcloud)
- Use a P2P synchronization like Syncthing
- (Manual synchronize via Thumb drive/cable)

Going the extra mile

- Additionally lock database with key-file
  - **BACKUP** the key-file locally
- Distribute key files manually to each device you intend to use
- Change passwords on a regular basis
  - use *expires* feature to remind you