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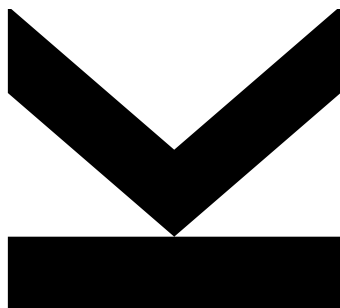
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Project Digidow: Biometric Sensor



Abstract

Zusammenfassung

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1 Introduction

All about motivation of doing this masterthesis

- introduction in project digidow
- privacy
- integrity

2 Concept

The theoretical tool that should be formed to one whole system implementation in this thesis

2.1 Attack Vectors and Threat Model

2.2 Trust and Security

2.3 Systems of Trust

2.3.1 Secure Boot, TXT, ...

2.3.2 TPM1.2

2.3.3 TPM2.0

2.4 Verify Trust (DA and DAA)

3 Handling Biometric Data

3.1 Extend the Trust to External Hardware

3.2 Mitigation of Attack Vectors

4 Implementation and Limitations

4.1 Trusted Boot

4.2 Linux Kernel Integrity Tools

5 Conclusion and Outlook

It is yet very hard to implement a system of this kind. The tools are available, but the documentation is not. I did at least figure out what a prototype can look like. Table 5.1 is an example of a table, in which the numbers are aligned at the comma, every second line is colored and the commands `\toprule`, `\midrule` and `\bottomrule` are used [1].

Table 5.1: Example

Länge l in m	Breite b in m	Höhe h in m
12.454	1.24	335.3
543.22	32.123	33.21
353.0	33.0	33.0
23.3	333.2	32.4

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Bibliography

- [1] Will ARTHUR, David CHALLENGER, and Kenneth GOLDMAN. *A Practical Guide to TPM 2.0*. Jan. 2015. DOI: 10.1007/978-1-4302-6584-9.

1 Installing IMA on Arch

https://wiki.archlinux.org/index.php/Kernel/Arch_Build_System in combination with https://wiki.gentoo.org/wiki/Integrity_Measurement_Architecture

```
sudo pacman -S asp base-devel
cd ~
mkdir build && cd build
asp update linux
asp export linux           #Linux repo exported to this directory
```

Change `pkgbase` in `linux/PKGBUILD` to custom name, e.g. `linux-ima`. Check `linux/config` for the following settings:

```
CONFIG_INTEGRITY=y
CONFIG_IMA=y
CONFIG_IMA_MEASURE_PCR_IDX=10
CONFIG_IMA_LSM_RULES=y
CONFIG_INTEGRITY_SIGNATURE=y
CONFIG_IMA_APPRAISE=y
IMA_APPRAISE_BOOTPARAM=y
```

For optimizing file access, add to every `fstab`-entry `iversion`. It prevents creating a hash of the file at every access. Instead the hash will only be created when writing the file.

`updpkgsums` generates new checksums for the modified files.

`makepkg -s` then makes the new kernel