



Information Security Group

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Proposal 2010-06: Passport Torturer

[<http://sites.uclouvain.be/security/internship.html>]

Level: Bachelor thesis.

Keywords: Security, RFID, Contactless smartcard, Implementation of security tests.

Requirements: The student should be fluent enough in English in order to read scientific papers. He should be able to learn quickly how to read/write contactless smartcards. He should know Linux and have some background in programming in Python and Java.

Theory: ● ● ● ● ● ●

Practice: ● ● ● ● ● ●

Abstract:

Biometric passports, a.k.a. *electronic passports* contain a contactless chip (RFID), usually in the back-cover of the book. These passports are compliant with the ICAO's DOC 9303 standard. In 2009, the GSI developed a tool (see <http://code.google.com/p/epassportviewer/>) that reads electronic passports and also allows to make a clone of them (under some restricted

assumptions).

Several scientific papers have been published about the security of the passport since 2004 (see further readings below). The goal of this project is to develop a passport torturer, that is a tool that check the resistance of a given passport to the published attacks. This will require the student to read and understand the literature related to the attacks on electronic passports, then to implement these attacks. The project could also include the implementation of new attacks not yet published.

Further readings:

- Gildas Avoine, Kassem Kalach, and Jean-Jacques Quisquater. ePassport: Securing International Contacts with Contactless Chips.
- Dario Carluccio, Kerstin Lemke-Rust, Christof Paar, and Ahmad-Reza Sadeghi. E-passport: The global traceability or how to feel like a UPS package.
- Rafik Chaabouni and Serge Vaudenay. The Extended Access Control for Machine Readable Travel Documents.
- Kc Gaurav and Paul Karger. Security and privacy issues in machine readable travel documents (MRTDs).
- Jaap-Henk Hoepman, Engelbert Hubbers, Bart Jacobs, Martijn Oostdijk, and Ronny Wichers~Schreur. Crossing Borders: Security and Privacy Issues of the European e-Passport.
- Ari Juels, David Molnar, and David Wagner. Security and Privacy Issues in E-passports.
- Jean Monnerat, Serge Vaudenay, and Martin Vuagnoux. About Machine-Readable Travel Documents.

Links towards these papers are available from <http://www.avoine.net/rfid/>

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