

Bioinspired Security Analysis of Wireless Protocols - DTU Orbit (08/11/2017)

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Fraglets represent an execution model for communication protocols that resembles the chemical reactions in living organisms. The strong connection between their way of transforming and reacting and formal rewriting systems makes a fraglet program amenable to automatic verification. Grounded on past work, this paper investigates feasibility of adopting fraglets as model for specifying security protocols and analysing their properties. In particular, we give concrete sample analyses over a secure RFID protocol, showing evolution of the protocol run as chemical dynamics and simulating an adversary trying to circumvent the intended steps. The results of our analysis confirm the effectiveness of the cryptofraglets framework for the model and analysis of security properties and eventually show its potential to identify and uncover protocol flaws.

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