Issue 2: Security Systems

Cryptography and security systems are two fields of security research that strongly interact and complement each other. The series of International Conferences on Cryptography and Security Systems (CSS) is a forum for presentation of theoretical and applied research papers, case studies, implementation experiences, as well as work-in-progress results in these two disciplines. The conference especially invites young researchers and PhD students who have an opportunity to share their results with colleagues, invited keynote lecturers, and the Program Committee members actively participating in conference sessions. The research papers presented during the Third International Conference on Cryptography and Security Systems (CSS 2014) held during September 22–24, 2014, in Lublin, Poland are published in three special volumes. One of them is vol. 448 of the Springer Communications in Computer and Information Science series. It includes seventeen regular papers, seven of which concern different areas of cryptography, while the remaining ten deal with recent problems of cryptographic protocols. Two other volumes are special issues of the journal Annales UMCS, ser. Informatica (vol. 14, no. 1 and 2). Thirteen papers in these issues are mainly short and work-in-progress papers; seven papers of Issue 1 concern cryptography and related problems while six remaining included in issue 2 deal with security systems. This issue of Annales UMCS, ser. Informatica is entitled "Security systems". It includes six papers presented during Short and Work-in-Progress Papers Session of the Third International Conference on Cryptography and Security Systems (CSS 2014). First four papers of this issue concern a very recent and extensively studied problem of contextual security. In the paper "Adaptable context management framework for secure network services" by Zbigniew Kotulski, Mariusz Sepczuk, Albert Sitek, Marcin Alan Tunia a new context management framework suitable for secure network services is proposed. The framework allows tracking contextual information from its origin, through all stages of its processing up to application in security services protecting the secure network application. Next three papers present different security services utilizing contextual information to increase their effectiveness. The paper of Mariusz Sepczuk entitled "Authentication mechanism based on adaptable context management framework for secure network services" outlines what the context information is and shows a secure and user-friendly authentication mechanism for a mail box in cloud computing, based on using contextual data. The paper of Albert Sitek, "Context-based Cardholder Verification Method in Electronic Funds Transfer transactions" presents an alternative Cardholder Verification Method (CVM) that can be used instead of traditional PIN-based authentication. The last paper in this series, "Vector approach to context data reliability" by Marcin Alan Tunia presents a vector approach to context data reliability assessment and introduces a mechanism which allows to assess reliability parameters for further usage in the context-aware security systems. The next paper of this issue deals with application of security systems in practical technological problems. The paper "The concept and security analysis of Wireless Sensor Network for Gas Lift in Oilwells" by Bartłomiej

Bielecki, Andrzej Krajka, Bogdan Ksiezopolski and Adam Wierzbicki considers the basic foundations and security requirements of WSN dedicated to Gas Lift Installations and shows possible attack scenarios and their influence on the production results. The last paper of this issue is "The Oracle – a New Intelligent Cooperative Strategy of Attacks on Trust and Reputation Systems" by Marek Janiszewski. It presents a new concept of attack on trust and reputation systems, a formal model of the attack, a definition of intelligent strategies of attacks on trust and reputation systems based on cooperation of many malicious nodes.

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