

Wolfgang Rankl · Wolfgang Effing

Smart Card Handbook

Third Edition

 WILEY



Smart Card Handbook 3rd Edition

**Keith Mayes, Konstantinos
Markantonakis**



Smart Card Handbook 3rd Edition:

Smart Card Handbook Wolfgang Rankl, Wolfgang Effing, 2010-11-04 The most comprehensive book on state of the art smart card technology available Updated with new international standards and specifications this essential fourth edition now covers all aspects of smart card in a completely revised structure Its enlarged coverage now includes smart cards for passports and ID cards health care cards smart cards for public transport and Java Card 3.0 New sub chapters cover near field communication NFC single wire protocol SWP and multi megabyte smart cards microcontroller with NAND Flash There are also extensive revisions to chapters on smart card production the security of smart cards including coverage of new attacks and protection methods and contactless card data transmission ISO IEC 10536 ISO IEC 14443 ISO IEC 15693 This edition also features additional views to the future development of smart cards such as USB MMU SWP HCI Flash memory and their usage new internet technologies for smart cards smart card web server HTTP Protocol TCP IP SSL TLS integration of the new flash based microcontrollers for smart cards until now the usual ROM based microcontrollers and a completely revised glossary with explanations of all important smart card subjects 600 glossary terms Smart Card Handbook is firmly established as the definitive reference to every aspect of smart card technology proving an invaluable resource for security systems development engineers Professionals and microchip designers working in the smart card industry will continue to benefit from this essential guide This book is also ideal for newcomers to the field The Fraunhofer Smart Card Award was presented to the authors for the Smart Card Handbook Third Edition in 2008 *Smart Card Handbook* Wolfgang

Rankl, 2003-05-20 **Smart Card Handbook** Wolfgang Rankl, Wolfgang Effing, 2004-04-02 Building on previous editions this third edition of the Smart Card Handbook offers a completely updated overview of the state of the art in smart card technology Everything you need to know about smart cards and their applications is covered Fully revised this handbook describes the advantages and disadvantages of smart cards when compared with other systems such as optical cards and magnetic stripe cards and explains the basic technologies to the reader This book also considers the actual status of appropriate European and international standards Features include New sections on smart card applications PKCS 15 USIM Tachosmart smart card terminals M U S C L E OCF MKT PC SC contactless card data transmission with smart cards Revised and updated chapters on smart cards in the telecommunications industry GSM UMTS U SIM application toolkit decoding of the files of a GSM card smart card security new attacks new protection methods against attacks A detailed description of the physical and technical properties and the fundamental principles of information processing techniques Explanations of the architecture of smart card operating systems data transfer to and from the smart card command set and implementation of the security mechanisms and the function of the smart card terminals Current applications of the technology on mobile telephones telephone cards the electronic purse and credit cards Discussions on future developments of smart cards USB MMU on microcontroller system on card flash memory and their usage Practical guidance on the future applications of smart

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Smart Card Research and Advanced Applications Josep Domingo-Ferrer, 2006-04-03 This volume constitutes the refereed proceedings of the 7th International Conference on Smart Card Research and Advanced Applications CARDIS 2006 held in Tarragona Spain in April 2006 The 25 revised full papers presented were carefully reviewed and updated for inclusion in this book The papers are organized in topical sections on smart card applications side channel attacks smart card networking cryptographic protocols RFID security and formal methods

Smart Cards, Tokens, Security and Applications Keith Mayes, Konstantinos Markantonakis, 2017-05-18 This book provides a broad overview of the many card systems and solutions that are in practical use today This new edition adds content on RFIDs embedded security attacks and countermeasures security evaluation javacards banking or payment cards identity cards and passports mobile systems security and security management A step by step approach educates the reader in card types production operating systems commercial applications new technologies security design attacks application development deployment and lifecycle management By the end of the book the reader should be able to play an educated role in a smart card related project even to programming a card application This book is designed as a textbook for graduate level students in computer science It is also as an invaluable post graduate level reference for professionals and researchers This volume offers insight into benefits and pitfalls of diverse industry government financial and logistics aspects while providing a sufficient level of technical detail to support technologists information security specialists engineers and researchers

Handbook of Surveillance Technologies, Third Edition J.K. Petersen, 2012-01-23 From officially sanctioned high tech operations to budget spy cameras and cell phone video this updated and expanded edition of a bestselling handbook reflects the rapid and significant growth of the surveillance industry The Handbook of Surveillance Technologies Third Edition is the only comprehensive work to chronicle the background and current applications of the full range of surveillance technologies offering the latest in surveillance and privacy issues Cutting Edge updates its bestselling predecessor with discussions on social media GPS circuits in cell phones and PDAs new GIS systems Google street viewing technology satellite surveillance sonar and biometric surveillance systems and emerging developments Comprehensive from sonar and biometric surveillance systems to satellites it describes spy devices legislation and privacy issues from their historical origins to current applications including recent controversies and changes in the structure of the intelligence

community at home and abroad Modular chapters can be read in any order browse as a professional reference on an as needed basis or use as a text for Surveillance Studies courses Using a narrative style and more than 950 illustrations this handbook will help journalists newscasters privacy organizations and civic planners grasp technical aspects while also providing professional level information for surveillance studies sociology and political science educators law enforcement personnel and forensic trainees It includes extensive resource information for further study at the end of each chapter Covers the full spectrum of surveillance systems including Radar Sonar RF ID Satellite Ultraviolet Infrared Biometric Genetic Animal Biochemical Computer Wiretapping Audio Cryptologic Chemical Biological X Ray Magnetic *High Performance Computing* Thomas Sterling, Maciej Brodowicz, Matthew Anderson, 2017-12-05 High Performance Computing Modern Systems and Practices is a fully comprehensive and easily accessible treatment of high performance computing covering fundamental concepts and essential knowledge while also providing key skills training With this book domain scientists will learn how to use supercomputers as a key tool in their quest for new knowledge In addition practicing engineers will discover how supercomputers can employ HPC systems and methods to the design and simulation of innovative products and students will begin their careers with an understanding of possible directions for future research and development in HPC Those who maintain and administer commodity clusters will find this textbook provides essential coverage of not only what HPC systems do but how they are used Covers enabling technologies system architectures and operating systems parallel programming languages and algorithms scientific visualization correctness and performance debugging tools and methods GPU accelerators and big data problems Provides numerous examples that explore the basics of supercomputing while also providing practical training in the real use of high end computers Helps users with informative and practical examples that build knowledge and skills through incremental steps Features sidebars of background and context to present a live history and culture of this unique field Includes online resources such as recorded lectures from the authors HPC courses

Information Security Practice and Experience Kefei Chen, Robert Deng, Xuejia Lai, Jianying Zhou, 2006-02-26 This book constitutes the refereed proceedings of the Second International Information Security Practice and Experience Conference ISPEC 2006 held in Hangzhou China in April 2006 The 35 revised full papers presented were carefully reviewed and selected from 307 submissions The papers are organized in topical sections Security of Mobile Communications Nouredine Boudriga, 2009-07-27 This innovative resource provides comprehensive coverage of the policies practices and guidelines needed to address the security issues related to today s wireless sensor networks satellite services mobile e services and inter system roaming and interconnecting systems It details the major mobile standards for securing mobile communications and examines architectures that can provide data confidentiality authentication integrity and privacy in various wireless environments The book defines the roles and responsibilities that network operators service providers and even customers need to fulfill to assure mobile communications are as secure as they are prolific *Construction and Analysis of Safe,*

Secure, and Interoperable Smart Devices Gilles Barthe, Benjamin Gregoire, Marieke Huisman, Jean-Luis Lanet, 2006-04-28 This book constitutes the refereed post proceedings of the Second International Workshop on Construction and Analysis of Safe Secure and Interoperable Smart Devices CASSIS 2005 The 9 revised full papers presented were carefully selected during two rounds of reviewing and improvement from about 30 workshop talks The papers are organized in topical sections on research trends in smart devices Web services virtual machine technology security validation and formal methods proof carrying code and embedded devices

Embedded Software and Systems Laurence T. Yang, Xingshe Zhou, Wei Zhao, Zhaohui Wu, Yian Zhu, Man Lin, 2005-11-30 Welcome to the proceedings of the 2005 International Conference on Embedded Software and Systems ICESS 2005 held in Xian China December 16 18 2005 With the advent of VLSI system level integration and system on chip the center of gravity of the computer industry is now moving from personal computing into embedded computing Embedded software and systems are increasingly becoming a key technological component of all kinds of complex technical systems ranging from vehicles telephones aircraft toys security systems to medical diagnostics weapons pacemakers climate control systems etc The ICESS 2005 conference provided a premier international forum for researchers developers and providers from academia and industry to address all resulting profound challenges to present and discuss their new ideas search results applications and experience to improve international communication and cooperation and to promote embedded software and system industrialization and wide applications on all aspects of embedded software and systems

The Network Manager's Handbook, Third Edition John M. Lusa, 2021-04-15 The Network Manager's Handbook is a one of a kind resource featuring critical network technology assessments and career development advice from some of the most highly respected consultants and network managers in the field This answer filled compendium provides a rich blend of precise knowledge and real world experience the result of many thousands of hours of actual hands on work in the field The book gives you proven successful economical solutions to real world problems associated with the host of new network technologies

China Semiconductor Technology International Conference 2010 (CSTIC 2010) Han-Ming Wu, 2010-03 Our mission is to provide a forum for world experts to discuss technologies address the growing needs associated with silicon technology and exchange their discoveries and solutions for current issues of high interest We encourage collaboration open discussion and critical reviews at this conference Furthermore we hope that this conference will also provide collaborative opportunities for those who are interested in the semiconductor industry in Asia particularly in China

Understanding Cryptography Christof Paar, Jan Pelzl, 2009-11-27 Cryptography is now ubiquitous moving beyond the traditional environments such as government communications and banking systems we see cryptographic techniques realized in Web browsers e mail programs cell phones manufacturing systems embedded software smart buildings cars and even medical implants Today's designers need a comprehensive understanding of applied cryptography After an introduction to cryptography and data security the authors explain the main techniques in modern cryptography with chapters addressing

stream ciphers the Data Encryption Standard DES and 3DES the Advanced Encryption Standard AES block ciphers the RSA cryptosystem public key cryptosystems based on the discrete logarithm problem elliptic curve cryptography ECC digital signatures hash functions Message Authentication Codes MACs and methods for key establishment including certificates and public key infrastructure PKI Throughout the book the authors focus on communicating the essentials and keeping the mathematics to a minimum and they move quickly from explaining the foundations to describing practical implementations including recent topics such as lightweight ciphers for RFIDs and mobile devices and current key length recommendations The authors have considerable experience teaching applied cryptography to engineering and computer science students and to professionals and they make extensive use of examples problems and chapter reviews while the book's website offers slides projects and links to further resources This is a suitable textbook for graduate and advanced undergraduate courses and also for self study by engineers

Encyclopedia of Multimedia Technology and Networking, Second Edition Pagani, Margherita, 2008-08-31 Advances in hardware software and audiovisual rendering technologies of recent years have unleashed a wealth of new capabilities and possibilities for multimedia applications creating a need for a comprehensive up to date reference The Encyclopedia of Multimedia Technology and Networking provides hundreds of contributions from over 200 distinguished international experts covering the most important issues concepts trends and technologies in multimedia technology This must have reference contains over 1 300 terms definitions and concepts providing the deepest level of understanding of the field of multimedia technology and networking for academicians researchers and professionals worldwide

Proceedings, 2003 *Handbook of Biometric Anti-Spoofing* Sébastien Marcel, Julian Fierrez, Nicholas Evans, 2023-02-23 The third edition of this authoritative and comprehensive handbook is the definitive work on the current state of the art of Biometric Presentation Attack Detection PAD also known as Biometric Anti Spoofing Building on the success of the previous editions this thoroughly updated third edition has been considerably revised to provide even greater coverage of PAD methods spanning biometrics systems based on face fingerprint iris voice vein and signature recognition New material is also included on major PAD competitions important databases for research and on the impact of recent international legislation Valuable insights are supplied by a selection of leading experts in the field complete with results from reproducible research supported by source code and further information available at an associated website Topics and features reviews the latest developments in PAD for fingerprint biometrics covering recent technologies like Vision Transformers and review of competition series examines methods for PAD in iris recognition systems the use of pupil size measurement or multiple spectra for this purpose discusses advancements in PAD methods for face recognition based biometrics such as recent progress on detection of 3D facial masks and the use of multiple spectra with Deep Neural Networks presents an analysis of PAD for automatic speaker recognition ASV including a study of the generalization to unseen attacks describes the results yielded by key competitions on fingerprint liveness detection iris liveness detection and

face anti spoofing provides analyses of PAD in finger vein recognition in signature biometrics and in mobile biometrics includes coverage of international standards in PAD and legal aspects of image manipulations like morphing This text reference is essential reading for anyone involved in biometric identity verification be they students researchers practitioners engineers or technology consultants Those new to the field will also benefit from a number of introductory chapters outlining the basics for the most important biometrics This text reference is essential reading for anyone involved in biometric identity verification be they students researchers practitioners engineers or technology consultants Those new to the field will also benefit from a number of introductory chapters outlining the basics for the most important biometrics

Information Security Management Handbook, Sixth Edition Harold F. Tipton, Micki Krause, 2007-05-14 Considered the gold standard reference on information security the Information Security Management Handbook provides an authoritative compilation of the fundamental knowledge skills techniques and tools required of today s IT security professional Now in its sixth edition this 3200 page 4 volume stand alone reference is organized under the CISSP Common Body of Knowledge domains and has been updated yearly Each annual update the latest is Volume 6 reflects the changes to the CBK in response to new laws and evolving technology

Autonomic and Trusted Computing Laurence T. Yang, Hai Jin, Theo Ungerer, 2006-10-04 This book constitutes the refereed proceedings of the Third International Conference on Autonomic and Trusted Computing ATC 2006 held in Wuhan China in September 2006 The 57 revised full papers presented together with two keynotes were carefully reviewed and selected from 208 submissions The papers are organized in topical sections

Smart Card Applications Wolfgang Rankl, 2007-04-30 A practical guide to the specification design and programming of smart card systems for working applications More than 3 billion smartcards are produced every year Generally defined as any pocket sized card with embedded integrated circuits or chips they have a huge number of applications including travel cards chip and pin cards pet tags mobile phone SIMs and pallet trackers Now with modern Smart Card technology such as Java Card and Basic Card it is possible for everyone to create his or her own applications on a smart card This book provides generic solutions for programming smart cards enabling the creation of working applications and systems Key features Presents a comprehensive introduction to the topic of smart cards explaining component elements and the smart card microcontrollers Sets out information on operating systems with case studies of a range of applications including credit card security mobile phones and transport payment cards Gives detailed advice on the monitoring of smart card applications recognizing potential attacks on security and improving system integrity Provides modules and examples so that all types of systems can be built up from a small number of individual components Offers guidelines on avoiding and overcoming design errors Ideal for practising engineers and designers looking to implement smart cards in their business it is also a valuable reference for postgraduate students taking courses on embedded system and smart card design

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