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| Nota di contenuto | Smart Card Applications; Contents; Foreword; Symbols and Notation; Abbreviations; 1 Overview of Smart Cards; 1.1 Card Classification; 1.2 Card Formats; 1.3 Card Elements; 1.3.1 Printing and labelling; 1.3.2 Embossing; 1.3.3 Hologram; 1.3.4 Signature panel; 1.3.5 Tactile elements; 1.3.6 Magnetic stripe; 1.3.7 Chip module; 1.3.8 Antenna; 1.4 Smart Card Microcontrollers; 1.4.1 Processor; 1.4.2 Memory; 1.4.3 Supplementary hardware; 1.4.4 Electrical characteristics; 2 Smart Card Operating Systems; 2.1 File Management; 2.1.1 File types; 2.1.2 File names; 2.1.3 File structures; 2.1.4 File attributes<br>2.1.5 File selection2.1.6 Access conditions; 2.1.6.1 State-based access conditions; 2.1.6.2 Rule-based access conditions; 2.1.7 File life cycle; 2.2 Commands; 2.3 Data Transmission; 2.3.1 Answer to Reset (ATR); 2.3.2 Protocol Parameter Selection (PPS); 2.3.3 Transmission protocols; 2.3.3.1 T=0 transmission protocol for contact cards; 2.3.3.2 T=1 transmission protocol for contact cards; 2.3.3.3 USB transmission protocol for contact cards; 2.3.3.4 Contactless transmission protocols; 2.3.4 Secure Messaging; 2.3.5 Logical channels; 2.4 Special Operating System Functions |

2.4.1 Cryptographic functions2.4.2 Atomic processes; 2.4.3 Interpreter; 2.4.4 Application management; 3 Application Areas; 3.1 Smart Card Systems; 3.2 Potential Uses; 3.3 Application Types; 3.3.1 Memory-based applications; 3.3.2 File-based applications; 3.3.3 Code-based applications; 4 Basic Patterns; 4.1 Data Protection; 4.1.1 Definition of terms; 4.1.2 General principles; 4.1.3 Recommendations for smart card systems; 4.1.4 Summary; 4.2 Export Control; 4.3 Cryptographic Regulation; 4.4 Standards; 4.4.1 Standards for card bodies; 4.4.2 Standards for operating systems
4.4.3 Standards for data and data structuring4.4.4 Standards for computer interfaces; 4.4.5 Standards for applications; 4.5 Documents for Smart Card Systems; 4.5.1 Specification partitioning; 4.5.1.1 System specification; 4.5.1.2 Background system specification; 4.5.1.3 Smart card specification; 4.5.1.4 Terminal specification; 4.5.2 Elements of a typical card specification; 4.5.2.1 General information; 4.5.2.2 Smart card; 4.5.2.3 Smart card operating system; 4.5.2.4 Application; 4.5.3 Document distribution; 4.5.4 Document version numbering; 5 Architecture Patterns; 5.1 Data; 5.2 Data Coding
5.3 Files5.3.1 Access conditions; 5.3.2 File names; 5.4 Log Files; 5.4.1 Data storage; 5.4.2 Assigning data to log files; 5.4.3 Invoking logging; 5.4.4 Access conditions for log files; 5.4.5 Logged data; 5.4.6 Consistency and authenticity of log data; 5.4.7 Log file size; 5.4.8 Logging process; 5.5 Pairing; 5.6 Protecting Transaction Data; 5.7 Reset-proof Counters; 5.8 Proactivity; 5.9 Authentication Counter; 5.10 Manual Authentication of a Terminal; 5.11 PIN Management; 5.12 One-time Passwords; 5.13 Key Management; 5.14 State Machines for Command Sequences; 5.15 Speed Optimization
5.15.1 Computing power

Sommario/riassunto

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 progra