



Practical Embedded Security: Building Secure Resource-Constrained Systems (Embedded Technology)

By Timothy Stapko

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The great strides made over the past decade in the complexity and network functionality of embedded systems have significantly enhanced their attractiveness for use in critical applications such as medical devices and military communications. However, this expansion into critical areas has presented embedded engineers with a serious new problem: their designs are now being targeted by the same malicious attackers whose predations have plagued traditional systems for years. Rising concerns about data security in embedded devices are leading engineers to pay more attention to security assurance in their designs than ever before. This is particularly challenging due to embedded devices' inherent resource constraints such as limited power and memory. Therefore, traditional security solutions must be customized to fit their profile, and entirely new security concepts must be explored. However, there are few resources available to help engineers understand how to implement security measures within the unique embedded context. This new book from embedded security expert Timothy Stapko is the first to provide engineers with a comprehensive guide to this pivotal topic. From a brief review of basic security concepts, through clear explanations of complex issues such as choosing the best cryptographic algorithms for embedded utilization, the reader is provided with all the information needed to successfully produce safe, secure embedded devices.

- The ONLY book dedicated to a comprehensive coverage of embedded security!
- Covers both hardware- and software-based embedded security solutions for preventing and dealing with attacks
- Application case studies support practical explanations of all key topics, including network protocols, wireless and cellular communications, languages (Java and C/C++), compilers, web-based interfaces, cryptography, and an entire section on SSL

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Editorial Review

From the Back Cover

Finally, embedded engineers have their own single-volume resource for defending their designs against would-be hackers!

- *Covers both hardware- and software-based embedded security solutions for preventing and dealing with attacks

- *Focuses on publicly available or low-cost security options

- *Case studies detail securing 8-bit PIC and Rabbit microprocessors

This book builds upon the basics of computer security and optimizes it for embedded systems. Often embedded systems are resource-constrained systems and therefore, may not have the power to implement robust security systems. The author takes on this problem guiding embedded designers, programmers, and engineers on how to build secure, low-cost, and resource-constrained systems.

Various techniques and tools are provided to the reader including:

- *Designing embedded-specific security protocols

- *Recognizing and dealing with attacks

- *Common pitfalls when trying to optimize security

- *A discussion of hardware alternatives

- *C and other languages and their strengths and weaknesses

- *A look at low-level networking protocols: TCP/IP, UDP, PPP, and Ethernet

- *An entire chapter on Secure Socket Layers (SSL)

- *Strategies for choosing algorithms and protocols for a particular platform

- *Working with wireless networking protocols: Bluetooth, ZigBee, and 802.11

- *Client/server applications detailed

Users Review

From reader reviews:

Donald Davisson:

Do you have favorite book? When you have, what is your favorite's book? Reserve is very important thing for us to understand everything in the world. Each guide has different aim as well as goal; it means that reserve has different type. Some people really feel enjoy to spend their time and energy to read a book. They may be reading whatever they acquire because their hobby is definitely reading a book. Consider the person who don't like examining a book? Sometime, individual feel need book if they found difficult problem or perhaps exercise. Well, probably you will want this Practical Embedded Security: Building Secure Resource-Constrained Systems (Embedded Technology).

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