Iosif I. Androulidakis

Mobile Phone Security and Forensics

A Practical Approach

Second Edition

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To my parents

Preface

Welcome to the second edition of "Mobile Phone Security and Forensics." The dominance of mobile phones has continued since the publication of the first version of the book, in an ever-increasing rate. However, while we are enjoying the technological advances that mobile phones offer, we are also facing new security risks coming as a cost of our increasing dependence on the benefits of wireless communications.

The purpose of this book is the same as before: to raise user awareness in regard to security and privacy threats present in the use of mobile phones. It is focused on practical issues and easy to follow examples, skipping theoretical analysis of algorithms and standards. Most sections have been enriched with new material. The book is more geared toward the mobile devices themselves and not the underlying networks, so most of the contents are applicable irrespectively of the "generation" of the network (GSM, 3G, 4G, etc.) to GSM and UMTS alike. The goal is to achieve a balance, including both technical and nontechnical chapters. Amateurs as well as experienced users will benefit from the overview of threats and the valuable practical advice. They will also get to know various tricks affecting the security of their phone. More advanced users will appreciate the technical discussions and will possibly try experimenting with the forensics and mobile phone control techniques presented in the respective chapters.

Chapter 1 gives an introduction to confidentiality, integrity, and availability threats in mobile telephones, providing the background for the rest of the book. In Chap. 2, the results of a large-scale survey and some following ones are presented, placing the user as one of the weakest links in the security landscape. With eavesdropping being one of the most apparent threats, a specific interception technique is examined in Chap. 3, while at the same time the inefficiencies of mobile phones' graphical user interfaces are highlighted in regard to security. The chapter is further enriched since the previous edition with a discussion regarding software defined radio and other advances in mobile telephony communications interception. Chapter 4 is the more diverse themed chapter of the book covering device and network codes, commands to control the phone, and software and hardware tricks. Software and mobile applications' security are not extensively covered since they mostly fall in computer security

literature. Chapter 5 is devoted to security in SMS, as a leading service in mobile telephony. Moreover, there is an extended discussion for fighting unsolicited SMS messages (spam). Following, a chapter focusing on the procedures and techniques of forensics reminds us that mobile phones will sooner or later be criminals' preferred target. Concluding the book, Chap. 7 synopsizes the previous chapters and provides a condensed list of practical security advices users should follow.

Closing, I would like to thank my family for all the support and love, my professors in Greece and Slovenia for their mentoring during my studies, and the security researchers all over the world I have met and collaborated with. They are all too many to be listed here but they know who they are! Last, but not least, I would like to thank my editor and all of the members of the Springer team that I collaborated with. With such a good collaboration writing, the second version of the book was a true pleasure. I hope you will enjoy reading it. Writing a book is a hard and long process but thanks to my editor's guidance everything proceeded pleasantly and smoothly.

Ioannina, Greece
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