

# Contents

- 1 Introduction: Confidentiality, Integrity, and Availability Threats in Mobile Phones. . . . .** 1
  - 1.1 Introduction . . . . . 1
  - 1.2 Confidentiality . . . . . 2
  - 1.3 Integrity . . . . . 4
  - 1.4 Availability. . . . . 7
  - 1.5 Manufacturers’ Responsibilities . . . . . 10
  - 1.6 Malicious Software and Other Issues . . . . . 11
  - 1.7 Conclusion . . . . . 11
  - References. . . . . 12
  
- 2 A Multinational Survey on Users’ Practices, Perceptions, and Awareness Regarding Mobile Phone Security . . . . .** 15
  - 2.1 Introduction . . . . . 15
  - 2.2 Methodology . . . . . 16
  - 2.3 Results . . . . . 17
    - 2.3.1 In General. . . . . 17
    - 2.3.2 Demographics . . . . . 18
    - 2.3.3 Economics . . . . . 18
    - 2.3.4 Security-Specific Questions. . . . . 20
  - 2.4 Related Work . . . . . 22
  - 2.5 Conclusion . . . . . 23
  - References. . . . . 26
  
- 3 Voice, SMS, and Identification Data Interception in GSM. . . . .** 29
  - 3.1 Introduction . . . . . 29
  - 3.2 Practical Setup and Tools. . . . . 31
  - 3.3 Implementation . . . . . 34
  - 3.4 Problem Solution . . . . . 36
    - 3.4.1 In General. . . . . 36

3.4.2	History of the Ciphering Indicator . . . . .	37
3.4.3	Recent Additions . . . . .	39
3.4.4	The Actual Situation . . . . .	39
3.5	Software-Defined Radio and Modified Firmware . . . . .	43
3.6	Conclusion . . . . .	44
	References . . . . .	45
<b>4</b>	<b>Software and Hardware Mobile Phone Tricks . . . . .</b>	<b>47</b>
4.1	Introduction . . . . .	47
4.2	Netmonitor . . . . .	47
4.3	GSM Network Service Codes . . . . .	48
4.3.1	In General. . . . .	48
4.3.2	Forwarding Services . . . . .	50
4.3.3	Barring Services. . . . .	51
4.3.4	Passwords. . . . .	51
4.3.5	Calling Line and Caller Identification . . . . .	52
4.3.6	Call Management. . . . .	53
4.4	Mobile Phone Codes . . . . .	55
4.5	Catalog Tricks . . . . .	58
4.6	AT Command Set. . . . .	59
4.6.1	In General. . . . .	59
4.6.2	Identification . . . . .	60
4.6.3	Call Control . . . . .	60
4.6.4	Device Control . . . . .	61
4.6.5	Catalogs . . . . .	62
4.6.6	SMS . . . . .	62
4.6.7	SIM Access . . . . .	66
4.7	Software . . . . .	66
4.8	Hardware . . . . .	67
4.9	Conclusion . . . . .	68
	References . . . . .	69
<b>5</b>	<b>SMS Security Issues . . . . .</b>	<b>71</b>
5.1	Introduction . . . . .	71
5.2	Availability Issues . . . . .	72
5.3	Confidentiality Issues. . . . .	73
5.4	Integrity Issues. . . . .	75
5.5	Other Security Issues . . . . .	77
5.6	SMS Spam . . . . .	78
5.7	Conclusion . . . . .	84
	References . . . . .	84
<b>6</b>	<b>Mobile Phone Forensics . . . . .</b>	<b>87</b>
6.1	Introduction . . . . .	87
6.2	Crime and Mobile Phones . . . . .	88
6.3	The Evidence . . . . .	89

6.4	Fundamental Questions and Problems . . . . .	90
6.5	Forensic Procedures . . . . .	91
6.5.1	Introduction . . . . .	91
6.5.2	In General. . . . .	91
6.5.3	Training and Competence . . . . .	92
6.5.4	The Analysis Procedure Itself . . . . .	93
6.5.5	Data Preservation and Isolation from the Network . . . . .	94
6.5.6	Identification of the Phone. . . . .	95
6.5.7	Examination of the SIM Card and the Memory of the Phone . . . . .	96
6.5.8	Findings Report . . . . .	97
6.6	The SIM Card . . . . .	97
6.7	Files Present in SIM Card . . . . .	99
6.7.1	In General. . . . .	99
6.7.2	International Mobile Subscriber Identity. . . . .	100
6.7.3	Integrated Circuit Card Identifier. . . . .	101
6.7.4	Location Information File and Broadcast Control Channel File. . . . .	102
6.7.5	SMS Storage File. . . . .	102
6.7.6	Abbreviated Dialing Numbers (Contact List) . . . . .	104
6.7.7	Last Numbers Dialed (Outgoing Calls) . . . . .	104
6.8	Device Data . . . . .	104
6.9	External Memory Dump . . . . .	106
6.10	External Memory Cards and Computers . . . . .	107
6.11	Evidence in the Operator's Network . . . . .	107
6.12	Conclusion . . . . .	107
	References. . . . .	108
<b>7</b>	<b>Conclusion</b> . . . . .	<b>111</b>
7.1	In General. . . . .	111
7.2	Practical Security Advices. . . . .	112
	<b>About the Author</b> . . . . .	<b>115</b>
	<b>Index</b> . . . . .	<b>117</b>

<http://www.springer.com/978-3-319-29741-5>

Mobile Phone Security and Forensics

A Practical Approach

Androulidakis, I.I.

2016, XI, 120 p. 47 illus., 34 illus. in color., Hardcover

ISBN: 978-3-319-29741-5