

Computer Security

COMPUTER CRIME

*A Crimefighter's
Handbook*



*David Icove, Karl Seger,
& William VonStorch*

O'Reilly & Associates, Inc.

Computer Crime

A Crimefighter's Handbook

David Icove, Karl Seger,
and William VonStorch

O'Reilly & Associates, Inc.
103 Morris Street, Suite A
Sebastopol, CA 95472

Table of Contents

<i>Foreword</i>	<i>ix</i>
<i>Preface</i>	<i>xv</i>
About This Book	xvi
Scope of the Book	xvii
Comments and Questions	xix
Acknowledgments	xix
 <i>Part I: Overview</i>	 <i>1</i>
 <i>1: Introduction to Computer Crime</i>	 3
Types of Attacks	5
What Laws Prohibit Computer Crime?	16
Where Are the Vulnerabilities?	17
Who Commits Computer Crimes?	22
How Can Computer Crime Be Prevented?	23
Handling Computer Crime	25
 <i>2: What Are the Crimes?</i>	 29
Breaches of Physical Security	30
Breaches of Personnel Security	35
Breaches of Communications and Data Security	40
Breaches of Operations Security	48
Ways of Detecting Common Attacks	54

<i>3: Who Commits Computer Crimes?</i>	61
Types of Offenders	61
Characteristics of Computer Criminals	65
Computer Crime Adversarial Matrix	67
 <i>4: What Are the Laws?</i>	71
Who Has Jurisdiction?	72
U.S. Federal Laws	73
State Laws	83
International Laws	85
 <i>Part II: Preventing Computer Crime</i>	87
 <i>5: What Is at Risk?</i>	89
Threats, Vulnerabilities, and Countermeasures	89
Steps in Risk Analysis	92
Identifying Threats	95
Identifying Assets	96
Identifying Vulnerabilities and Countermeasures	98
 <i>6: Physical Security</i>	103
Basic Physical Security	104
Testing Physical Security Programs	107
Natural Disaster Checklists	110
Environmental Disaster Checklists	112
Intruder Checklists	113
 <i>7: Personnel Security</i>	115
Developing a Personnel Security Program	116
Types of Threats	116
Different People/Different Threats	118
Personnel Security Checklist	126
 <i>8: Communications Security</i>	129
Types of Networks	129
Network Communications	132
Protecting Your Network Communications	134
Communications Security Checklist	141

<i>9: Operations Security</i>	143
Planning Operations Security	144
Where Do Computer Criminals Get Information?	146
Developing an Operations Security Program	150
Ongoing Operations Security	153
 <i>Part III: Handling Computer Crime</i>	 155
 <i>10: Planning How to Handle a Computer Crime</i>	 157
Finding Out About a Computer Crime	158
Setting Up Detection Measures	160
Forming a Crisis Management Team	161
What to Do If the Intruder Is on the System	163
Examining Log Files and Other Evidence	168
Be Careful from the Start	171
 <i>11: Investigating a Computer Crime</i>	 175
Calling in Law Enforcement	176
Forming an Investigative Team	176
How to Investigate	178
Preparing a Search Warrant	179
What to Bring to the Scene	181
Executing a Search Warrant	183
Getting Help from a Technical Adviser	187
Auditing Tools	188
Guidelines for Handling Evidence	189
 <i>12: Prosecuting a Computer Crime</i>	 195
Judges and Juries	195
Evidence in Computer Crime Cases	196
Testifying in Computer Crime Cases	201
After the Prosecution	202
 <i>Part IV: Computer Crime Laws</i>	 203

<i>Part V: Appendices</i>	351
<i>A: Resource Summary</i>	353
Books	353
Periodicals	355
User Organizations	357
Emergency Response Organizations	358
Government Agencies	365
Electronic Resources	365
<i>B: Raiding the Computer Room</i>	369
Warrant Requirement	370
Executing the Search Warrant	382
Conclusion	389
<i>C: The Microcomputer as Evidence</i>	391
Introduction	391
Procedures for Submission and Examination of Computer Evidence	394
Conclusion	395
References	395
<i>D: A Sample Search Warrant</i>	397
<i>Glossary</i>	411
<i>Index</i>	429

COMPUTER CRIME: A Crimefighter's Handbook

Terrorist attacks on computer centers, electronic fraud on international funds transfer networks, viruses and worms in our software, corporate espionage on business networks, and crackers breaking into systems on the Internet...Computer criminals are becoming ever more technically sophisticated, and it's an increasing challenge to keep up with their methods.

This book is for anyone who needs to know what today's computer crimes look like, how to prevent them, and how to detect, investigate, and prosecute them if they do occur. It contains basic computer security information as well as guidelines for investigators, law enforcement, and computer system managers and administrators. Also included is the text of U.S. federal, state, and international computer crime laws.

"This is more than a handbook for investigators in tracking down computer crime—it also tells you how to respond to threats and ways to avoid problems. This book shows where computing meets law enforcement."

—Cliff Stoll, author of *The Cuckoo's Egg* and *Silicon Snake Oil*

"This book provides an excellent primer for both the network security professional and the criminal investigator...The authors assisted in the successful conclusion of several federal investigations."

—James C. Settle, I-NET and former FBI agent

"...a very helpful and interesting book. I'm going to make sure all of the Secret Service new Electronic Crimes Special Agents get a copy to assist them."

—Bob Friel, U.S. Secret Service

"This is an excellent and worthwhile handbook for both the novice and experienced computer crime investigator. I will recommend it to my computer crime classes."

—Detective Robert M. Snyder, Columbus Ohio Police Department

"Any organization that is worried about attacks on their computer systems, especially those attached to the Internet, should run to the bookstore to pick up a copy of *Computer Crime*. It's one-stop shopping for system administrators and law enforcers, with plenty of pointers to additional resources if needed."

—Lance J. Hoffman, Director, Institute for Computer and Telecommunications Systems Policy,
School of Engineering, The George Washington University



Printed on Recycled Paper

ISBN 1-56592-086-4