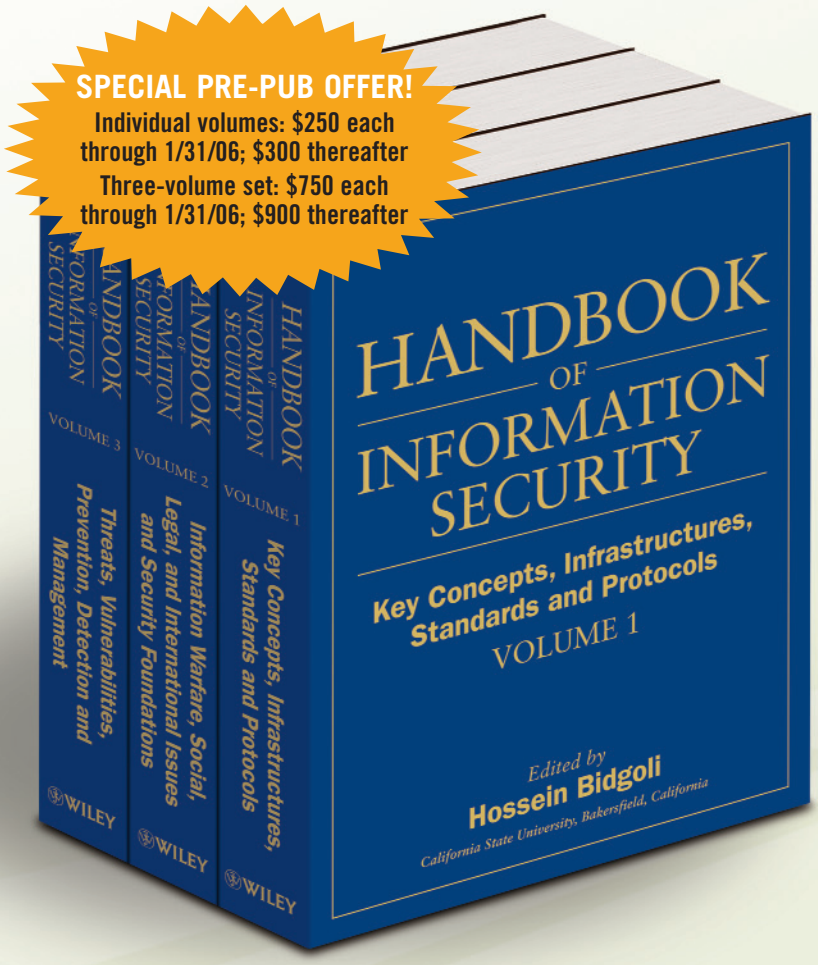
The Definitive Resource on Information and Computer Security



EDITED BY **HOSSEIN BIDGOLI,**
CALIFORNIA STATE UNIVERSITY,
BAKERSFIELD, CALIFORNIA

This definitive 3-volume *Handbook* offers coverage of both established and cutting-edge theories and developments on information and computer security. Among industries expected to become increasingly dependent upon the information and computer security and active in understanding the many issues surrounding this important and fast growing field are: government agencies, military, education, libraries, health, medical, law enforcement, accounting firms, law firms, justice, manufacturing, financial services, insurance, communications, transportation, aerospace, energy, biotechnology and utilities.

Volume I: Key Concepts, Infrastructure, Standards and Protocols

Volume II: Information Warfare, Social, Legal, and International Issues and Security Foundations

Volume III: Threats, Vulnerabilities, Prevention, Detection and Management Contents

"The *Handbook of Information Security* is...a must have reference!"

—Donn B. Parker, CISSP, Author and retired Senior Information Systems Management Consultant

WILEY
Now you know.
wiley.com

CONTRIBUTORS FROM AROUND THE WORLD...

Australia, Austria, Canada, China, France, Germany, Hungary, Italy, United Kingdom, United States

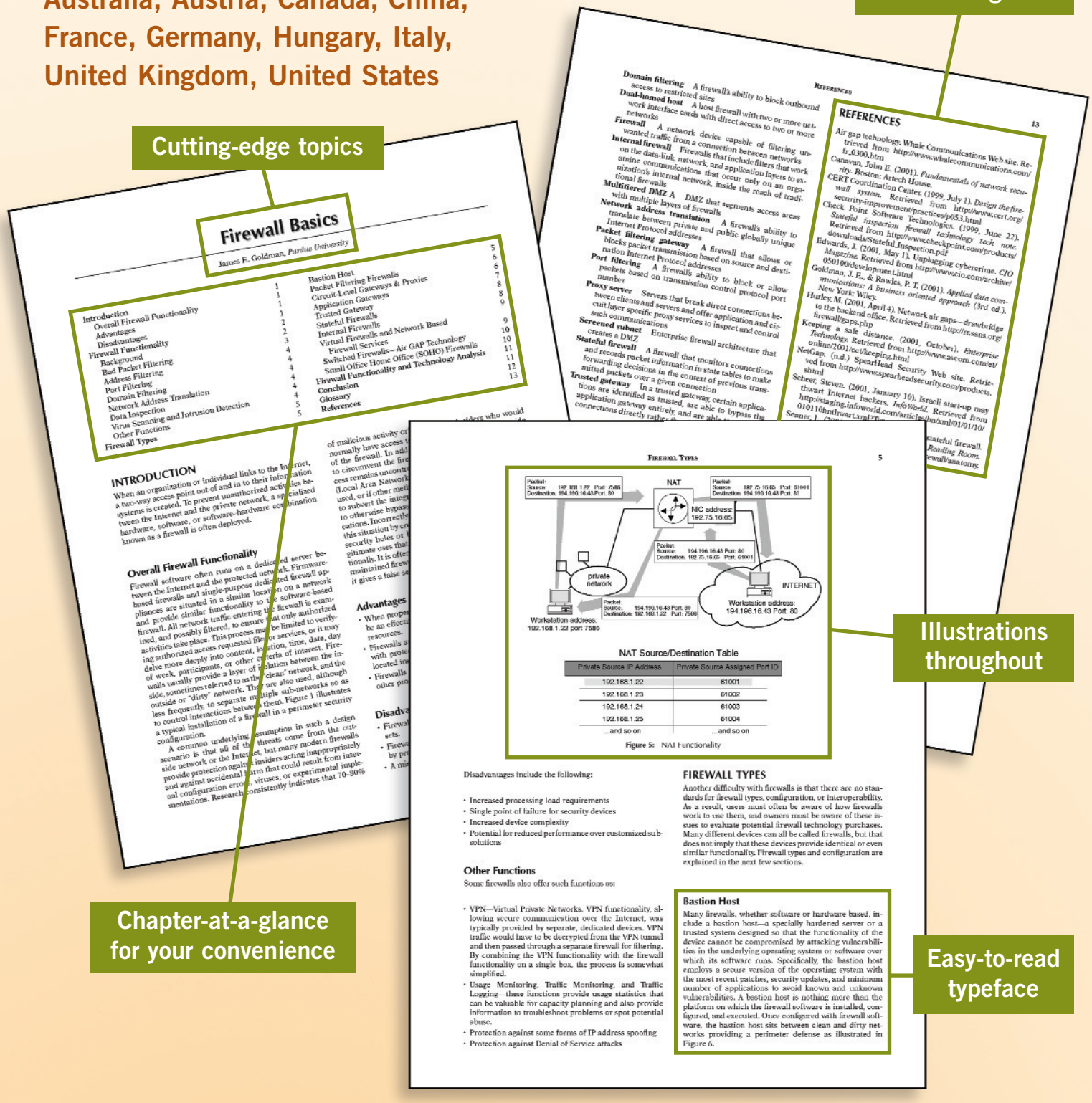
Detailed reference guide

Cutting-edge topics

Illustrations throughout

Chapter-at-a-glance for your convenience

Easy-to-read typeface



KEY FEATURES:

- The *Handbook* provides researchers and managers with a solid coverage of the core technologies and applications in the information security field.
- Articles in the *Handbook* have been rigorously peer-reviewed by more than 1,000 experts chosen from around the world.
- Includes more than 200 articles from over 200 leading experts.
- Each article follows a unique format including Title and Author, Glossary, Abstract, Introduction, Body, Conclusion, Cross-references, and Bibliography. This unique format assists the readers to pick and choose various sections of an article and also creates consistency throughout the entire series.

Volume I: Key Concepts, Infrastructure, Standards and Protocols

Part 1: Key Concepts and Applications Related to Information Security

Internet Basics
Hossein Bidgoli
California State University, Bakersfield

Digital Economy
Nirvikar Singh
University of California, Santa Cruz

Online Retail Banking: Security Concerns, Breaches and Controls
Kent Belasco
First Midwest Bank, Itasca, IL
Siaw-Peng Wan
Elmhurst College

Digital Libraries: Security and Preservation Considerations
Cavan McCarthy
Louisiana State University

E-Mail and Instant Messaging
Bhagyavati
Columbus State University

Internet Relay Chat
Paul L. Witt
Texas Christian University

Online Communities
Lee Sproull
New York University

Groupware: Risks, Threats and Vulnerabilities in the Internet Age
Pierre Balthazard
Arizona State University
John Warren
University of Texas, San Antonio

Search Engines: Security, Privacy and Ethical Issues
Raymond Wisman
Indiana University Southeast

Web Services
Akhil Sahai
Hewlett-Packard Laboratories
Palo Alto, CA
Sven Graupner
Hewlett-Packard Laboratories
Palo Alto, CA
Wooyoung Kim
University of Illinois,
Urbana-Champaign

Electronic Commerce
Charles Steinfield
Michigan State University

EDI Security
Matthew K. McGowan
Bradley University

Electronic Payment Systems
Indrajit Ray
Colorado State University

Intranets: Principals, Privacy and Security Considerations
William T. Schiano
Bentley College

Extranets: Applications, Development, Security and Privacy
Stephen W. Thorpe
Neumann College

Business-to-Business Electronic Commerce
Julian J. Ray
University of Redlands

Click-and-Brick Electronic Commerce
Charles Steinfield
Michigan State University

Mobile Commerce
Vijay Atluri
Rutgers University

E-Education and Information Privacy and Security
William K. Jackson
Southern Oregon University

Security in E-Learning
Edgar R. Weippl
Vienna University of Technology,
Vienna, Austria

E-Government
Shannon Schelin
The University of North Carolina,
Chapel Hill
G. David Garson
North Carolina State University

E-Government Security Issues and Measures
William C. Barker
National Institute of Standards
and Technology

International Security Issues of E-Government
Karin Geiselhart
University of Canberra, Australia

Part 2: Infrastructure for the Internet, Computer Networks and Secure Information Transfer

Conducted Communications Media
Thomas L. Pigg
Jackson State Community College

Routers and Switches
Hans-Peter Dommel
Santa Clara University

Radio Frequency and Wireless Communications Security
Okechukwu Ugweje
The University of Akron

Wireless Channels
P. M. Shankar
Drexel University

Security in Circuit, Message and Packet Switching
Robert H. Greenfield
Computer Consulting
Daryle P. Niedermayer
CGI Group Inc.

Digital Communication
Robert W. Heath Jr.
The University of Texas, Austin
Atul A. Salvekar
Intel Corporation
William Bard
The University of Texas, Austin

Local Area Networks
Wayne C. Summers
Columbus State University

Wide Area and Metropolitan Area Networks
Lynn A. DeNoia
Rensselaer Polytechnic Institute

Home Area Networking
Sherali Zeadally
Wayne State University
Priya Kubher
Wayne State University
Nadeem Ansari
Wayne State University

Public Network Technologies and Security
Dale R. Thompson
University of Arkansas
Amy W. Apon
University of Arkansas

Client/Server Computing: Principles and Security Considerations
Daniel J. McFarland
Rowan University

Peer-to-Peer Security
Allan Friedman
Harvard University
L. Jean Camp
Harvard University

Security Middleware
Linda Volonino
Canisius College
Richard P. Volonino
Canisius College

Internet Architecture
Graham Knight
University College, London, UK

TCP/IP Suite
Prabhaker Mateti
Wright State University

Voice over Internet Protocol (VoIP)
Roy Morris
Capitol College

Security and Web Quality of Service
Tarek F. Abdelzhaer
University of Virginia
Chengdu Huang
University of Virginia

Mobile Devices and Protocols
Min Song
Old Dominion University

Bluetooth Technology
Brent A. Miller
IBM Corporation

Wireless Local Area Networks
Mohammad S. Obaidat
Monmouth University
G. I. Papadimitriou
Aristotle University, Greece
S. Obeidat
Arizona State University

Security in Wireless Sensor Networks
Mohamed Eltoweissy
Virginia Tech
Stephan Olariu
Old Dominion University
Ashraf Wadaa
Old Dominion University

Cellular Networks
Jingyuan Zhang
The University of Alabama
Ivan Stojmenovic
University of Ottawa, Ottawa, Ontario

Mobile IP
M. Farooque Mesiya
Rensselaer Polytechnic Institute

IP Multicast and its Security
Emilia Rosti
Università degli Studi di Milano, Italy

TCP over Wireless Links
Mohsen Guizani
Western Michigan University
Anupama Raju
Western Michigan University

Air-Interface Requirements for Mobile Data Services
Harald Haas
International University Bremen
(IUB), Germany

Wireless Internet
Abbas Jamalipour
University of Sydney, Australia

Security for Satellite Networks
Michele Luglio
University of Rome Tor Vergata, Italy
Antonio Saitto
Telespazio, Italy

Security of Broadband Access Networks
Peter L. Heinzmann
University of Applied Sciences,
Eastern Switzerland

Ad hoc Network Security
Pietro Michiardi
Institut Eurecom, France
Refik Molva
Institut Eurecom, France

Part 3: Standards and Protocols for Secure Information Transfer

Standards for Product Security Assessment
István Zsolt Berta
Budapest University of Technology
and Economics, Hungary
Levente Buttyán
Budapest University of Technology
and Economics, Hungary
István Vajda
Budapest University of Technology
and Economics, Hungary

Digital Certificates
Albert Levi
Sabanci University, Turkey

Internet E-Mail Architecture
Robert Gezelter
Software Consultant

PKI (Public Key Infrastructure)
Radia Perlman
Sun Microsystems Laboratories

S/MIME (Secure MIME)
Steven J. Greenwald
Independent Information
Security Consultant

PGP (Pretty Good Privacy)
Stephen A. Weis
Massachusetts Institute of Technology

SMTP (Simple Mail Transfer Protocol)
Vladimir V. Riabov
Rivier College

Internet Security Standards
Raymond R. Panko
University of Hawaii, Manoa

Kerberos
William Stallings
Independent Consultant

IPsec: AH (Authentication Header) and ESP (Encapsulating Security Payload)
Amel Meddeb
National Digital Certification Agency
and University of Carthage, Tunisia
N. Boudriga
National Digital Certification Agency
and University of Carthage, Tunisia
Mohammad S. Obaidat
Monmouth University

IPsec: IKE (Internet Key Exchange)
Charlie Kaufman
Microsoft Corporation

Secure Sockets Layer (SSL)
Robert J. Boncella
Washburn University

PKCS (Public-Key Cryptography Standards)
Yongge Wang
University of North Carolina, Charlotte

Secure Shell (SSH)
Xukai Zou
Purdue University

Security and the Wireless Application Protocol (WAP)
Lillian N. Cassel
Villanova University
Cynthia Pandolfo
Villanova University

Wireless Network Standards and Protocol (802.11)
Prashant Krishnamurthy
University of Pittsburgh

P3P (Platform for Privacy Preferences Project)
Lorrie Faith Cranor
Carnegie Mellon University

Volume II: Information Warfare, Social, Legal, and International Issues and Security Foundations

Part 1: Information Warfare

Cybercrime and the U.S. Criminal Justice System
Susan W. Brenner
University of Dayton

Cyberterrorism and Information Security
Charles Jaeger
Southern Oregon University

Online Stalking
David J. Loundy
DePaul University

Electronic Attacks
Thomas M. Chen
Southern Methodist University
Matthew C. Elder
Symantec Corporation
Jimi Thompson
Southern Methodist University

Wireless Information Warfare
Randall K. Nichols
The George Washington University

Computer Network Operations (CNO)
Andrew Blyth
University of Glamorgan, UK

Electronic Protection
Neil C. Rowe
Naval Postgraduate School

Information Assurance
Peng Liu
Pennsylvania State University
Meng Yu
Monmouth University
Jiwu Jing
Chinese Academy of Sciences, Beijing, China

Part 2: Social and Legal Issues

The Legal Implications of Information Security: Regulatory Compliance and Liability
Blaze D. Waleski
Fulbright & Jaworski L.L.P.

Hackers, Crackers and Computer Criminals
David Dittrich
University of Washington
Kenneth Einar Himma
Seattle Pacific University

Hacktivism
Paul A. Taylor
University of Leeds, UK
Jan Li. Harris
Salford University, UK

Corporate Spying: The Legal Aspects
William A. Zucker
Gadsby Hannah LLP
Scott Nathan
Independent Consultant

Law Enforcement and Computer Security Threats and Measures
Mathieu Deflem
University of South Carolina
J. Eagle Shutt
University of South Carolina

Combating the Cyber Crime Threat: Developments in Global Law Enforcement
Roderic Broadhurst
University of Hong Kong, Hong Kong

Digital Identity
Drummond Reed
OneName Corporation
Jerry Kindall
Epok, Inc.

Digital Divide
Jaime J. Davila
Hampshire College

Legal, Social and Ethical Issues of the Internet
Kenneth Einar Himma
Seattle Pacific University

Anonymity and Identity on the Internet
Jonathan Wallace
Independent Consultant

Spam and the Legal Counter Attacks
Charles Jaeger
Southern Oregon University

Cyberlaw: The Major Areas, Development and Information Security Aspects
Dennis M. Powers
Southern Oregon University

Global Aspects of Cyberlaw
Julia Alpert Gladstone
Bryant College

Privacy Law and the Internet
Ray Everett-Church
PrivacyClue LLC

Internet Censorship
Richard A. Spinello
Boston College

Copyright Law
Randy Canis
Greensfelder, Hemker & Gale, P.C.

Patent Law
Gerald Bluhm
Tyco Fire & Security

Trademark Law and the Internet
Ray Everett-Church
PrivacyClue LLC

Online Contracts
G.E. Evans
Queen Mary University of London
Intellectual Property Research Institute, UK

Electronic Speech
Seth Finkelstein
Consulting Programmer

Software Piracy
Robert K. Moniot
Fordham University

Internet Gambling
Susanna Frederick Fischer
The Catholic University of America

The Digital Millennium Copyright Act
Seth Finkelstein
Consulting Programmer

Digital Courts, the Law and Evidence
Robert Slade
Independent Consultant, Canada

Part 3: Foundations of Information, Computer and Network Security

Encryption Basics
Ari Juels
RSA Laboratories

Symmetric-Key Encryption
Jonathan Katz
University of Maryland

Data Encryption Standard (DES)
Mike Speciner
Independent Consultant

The Advanced Encryption Standard
Duncan A. Buell
University of South Carolina

Hashes and Message Digests
Magnus Daumand
Ruhr University Bochum, Germany
Hans Dobbertin
Ruhr University Bochum, Germany

Number Theory for Information Security
Duncan A. Buell
University of South Carolina

Public-Key Algorithms
Bradley S. Rubin
University of St. Thomas

Elliptic Curve Cryptography
Nigel Smart
University of Bristol, UK

IBE (Identity-Based Encryption)
Craig Gentry
DoCoMo USA Labs

Cryptographic Protocols
Markus Jakobsson
Indiana University, Bloomington

Quantum Cryptography
G. Massimo Palma
Università degli Studi di Milano, Italy

Key Lengths
Arjen K. Lenstra
Lucent Technologies and Technische Universiteit Eindhoven, USA

Key Management
Xukai Zou
Purdue University
Amandeep Thukral
Purdue University

Secure Electronic Voting Protocols
Helger Lipmaa
Cybernetica AS (Estonia), Finland

Digital Evidence
Robin C. Stuart
Digital Investigations Consultant

Digital Watermarking and Steganography
M. A. Suha
University of Bradford, UK
B. Sadoun
Al-Balqà Applied University, Jordan
Mohammad S. Obaidat
Monmouth University

Law Enforcement and Digital Evidence
J. Philip Craiger
University of Central Florida
Mark Pollitt
DigitalEvidencePro
Jeff Swauger
University of Central Florida

Forensic Computing
Mohamed Hamdi
National Digital Certification Agency, Tunisia
Noureddine Boudriga
National Digital Certification Agency, Tunisia
Mohammad S. Obaidat
Monmouth University

Computer Forensic Procedures and Methods
J. Philip Craiger
University of Central Florida

Computer Forensics: Computer Media Reviews in Classified Government Agencies
Michael R. Anderson
New Technologies, Inc.

Forensic Analysis of Unix Systems
Dario V. Forte
University of Milan, Crema, Italy

Forensic Analysis of Windows Systems
Steve J. Chapin
Syracuse University
Chester J. Maciag
Air Force Research Laboratory

Operating System Security
William Stallings
Independent Consultant

Unix Security
Mark Shacklette
The University of Chicago

Linux Security
A. Justin Wilder
Information Technology Agency

OpenVMS Security
Robert Gezelter
Software Consultant

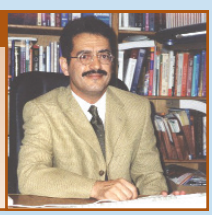
Windows 2000 Security
E. Eugene Schultz
University of California-Berkeley Lab

Software Development and Quality Assurance
Pascal Meunier
Purdue University

The Common Criteria
John P. McDermott
Naval Research Laboratory

"This book is a 'must-have' for anyone practicing or researching any aspect of computer security."
—Aviel D. Rubin, Professor, Computer Science, Johns Hopkins University; Technical Director, Information Security Institute; President, Independent Security Evaluators LLC

ABOUT THE EDITOR-IN-CHIEF:



HOSSEIN BIDGOLI, PHD, is Professor of Management Information Systems at California State University, Bakersfield. Dr. Bidgoli helped set up the first PC lab in the United States. He is the author of 43 textbooks, 28 manuals, and over five dozen technical articles and papers on various aspects of computer applications, e-commerce, and information systems security published and presented throughout the world. Dr. Bidgoli also serves as the editor-in-chief of the *Internet Encyclopedia* and *Encyclopedia of Information Systems.* Dr. Bidgoli was selected as the California State University Bakersfield's 2001-2002 Professor of the Year.

Volume III: Threats, Vulnerabilities, Prevention, Detection and Management Contents

ORDER FORM

SPECIAL PRE-PUBLICATION OFFER – SAVE WHEN YOU ORDER BY JANUARY 31, 2006

INDIVIDUAL VOLUMES

❑ Volume 1: Key Concepts, Infrastructure, Standards and Protocols (0-471-64830-2)	~~$300.00~~ / $250.00	_____
❑ Volume 2: Information Warfare, Social, Legal, and International Issues and Security Foundations (0-471-64831-0)	~~$300.00~~ / $250.00	_____
❑ Volume 3: Threats, Vulnerabilities, Prevention, Detection and Management (0-471-64832-9)	~~$300.00~~ / $250.00	_____

THREE VOLUME SET

❑ Handbook of Information Security (0-471-64833-7)	~~$900.00~~ / $750.00	_____

Other works by Dr. Bidgoli include the best-selling and award-winning three-volume *The Internet Encyclopedia* (0-471-22201-1, December 2003, $750)

ORDER AMOUNT	_____
SHIPPING CHARGES	_____
SALES TAX	_____
TOTAL ENCLOSED	_____

CUSTOMER INFORMATION

Name / Title _____

Organization _____

Address _____
(Please note we cannot ship to post office boxes)

City/State/Zip _____

Telephone: _____ Email: _____
(required on all orders in case of inquiry)

SHIP TO (if different from Customer Information):

Name / Title _____

Company Name (if applicable) _____

Address _____

City/State/Zip _____

WILEY
Now you know.
wiley.com

PROMO CODE 54001

PAYMENT METHOD (all payments must be in US Dollars):

Payment Enclosed: ❑ VISA ❑ MC ❑ AMEX ❑ DISCOVER ❑ CHECK/MONEY ORDER

Card # _____ Exp. Date ____/____/____

Cardholder Name _____

Authorized Signature _____

❑ **Bill My Company** (for organizations only). A valid purchase order number and telephone number are required. For orders over $500.00, a hard copy of the purchase order must accompany your order. Billed orders will include shipping charges. Billed orders in U.S. currency only.

Purchase Order # _____

Shipping and handling, applicable taxes, sale items, subscriptions, supplements, electronic products and sets (unless otherwise noted), and Pfeiffer Annuals excluded. Offers cannot be combined for additional discounts. All orders must be paid in U.S. dollars. Prices subject to change. Free shipping, when offered, is available only within the 50 United States and only via UPS Ground. Free shipping to HI, AK, and PR is via 2-Day air. FOB SHIPPING POINTS: Somerset, NJ and Harrisonburg, VA.

SHIPPING CHARGES

Merchandise	Surface	2-Day	1-Day
First Item	$5.00	$10.50	$17.50
Each additional item	$3.00	$3.00	$4.00

SALES TAX

Add appropriate sales tax. FED TAX ID 135593032. Tax-Exempt Institutions: All orders must be placed by phone, fax, or mail with a copy of your tax-exemption certificate. When ordering, please specify your valid promotion code to receive any applicable discount.

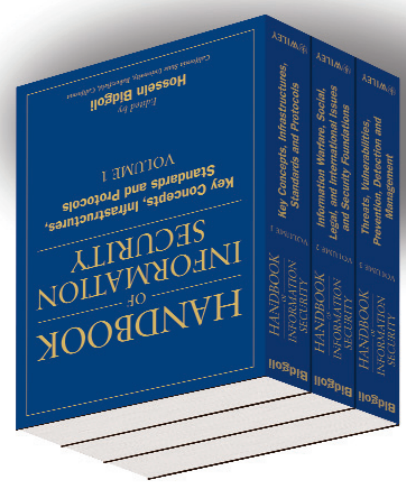
DELIVERY

Orders shipped via "Surface" will normally arrive within 7-10 business days. Orders shipped via "2-Day" will normally arrive within 2-3 business days of placement of order via telephone. Orders shipped via "1-Day" will normally arrive within 1-2 business days from placement of order via telephone (before 1:00pm EST). All orders are subject to credit review. Alaska, Hawaii, Puerto Rico, and other U.S. Protectorates orders will be shipped via "2-Day Air."

MAIL TO: John Wiley & Sons, Inc., Attn: M. Patterson
111 River Street, Hoboken, NJ 07030
TO ORDER BY PHONE: 1-877-762-2974

SPECIAL PRE-PUB OFFER!
See inside for details

The Definitive Resource on Information and Computer Security



WILEY
John Wiley & Sons
111 River Street
Hoboken, NJ 07030

FPO