

Virtualization And Forensics A Digital Forensic Investigators Guide To Virtual Environments By Diane Barrett Published By Syngress Media 2010

Virtualization and Forensics A Digital Forensic Investigator's Guide to Virtual Environments Syngress

Every year, in response to new technologies and new laws in different countries and regions, there are changes to the fundamental knowledge, skills, techniques, and tools required by all IT security professionals. In step with the lightning-quick, increasingly fast pace of change in the technology field, the Information Security Management Handbook, updated yearly, has become the standard on which all IT security programs and certifications are based. It reflects new updates to the Common Body of Knowledge (CBK) that IT security professionals all over the globe need to know. Captures the crucial elements of the CBK Exploring the ten domains of the CBK, the book explores access control, telecommunications and network security, information security and risk management, application security, and cryptography. In addition, the expert contributors address security architecture and design, operations security, business continuity planning and disaster recovery planning. The book also covers legal regulations, compliance, investigation, and physical security. In this anthology of treatises dealing with the management and technical facets of information security, the contributors examine varied topics such as anywhere computing, virtualization, podslurping, quantum computing, mashups, blue snarfing, mobile device theft, social computing, voting machine insecurity, and format string vulnerabilities. Also available on CD-ROM Safeguarding information continues to be a crucial concern of all IT professionals. As new risks threaten the security of our systems, it is imperative that those charged with protecting that information continually update their armor of knowledge to guard against tomorrow's hackers and software vulnerabilities. This comprehensive Handbook, also available in fully searchable CD-ROM format keeps IT professionals abreast of new developments on the security horizon and reinforces timeless concepts, providing them with the best information, guidance, and counsel they can obtain.

Digital forensics deals with the acquisition, preservation, examination, analysis and presentation of electronic evidence. Networked computing, wireless communications and portable electronic devices have expanded the role of digital forensics beyond traditional computer crime investigations. Practically every crime now involves some aspect of digital evidence; digital forensics provides the techniques and tools to articulate this evidence. Digital forensics also has myriad intelligence applications. Furthermore, it has a vital role in information assurance - investigations of security breaches yield valuable information that can be used to design more secure systems. Advances in Digital Forensics IX describe original research results and innovative applications in the discipline of digital forensics. In addition, it highlights some of the major technical and legal issues related to digital evidence and electronic crime investigations. The areas of coverage include: Themes and Issues, Forensic Models, Forensic Techniques, File system Forensics, Network Forensics, Cloud Forensics, Forensic Tools, and Advanced Forensic Techniques. This book is the ninth volume in the annual series produced by the International Federation for Information Processing (IFIP) Working Group 11.9 on Digital Forensics, an international community of scientists, engineers and practitioners dedicated to advancing the state of the art of research and practice in digital forensics. The book contains a selection of twenty-five edited papers from the Ninth Annual IFIP WG 11.9 International Conference on Digital Forensics, held in Orlando, Florida, USA in the winter of 2013. Advances in Digital Forensics IX is an important resource for researchers, faculty members and graduate students, as well as for practitioners and individuals engaged in research and development efforts for the law enforcement and intelligence communities. Gilbert Peterson is an Associate Professor of Computer Engineering at the Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA. Sujeet Shenoj is the F.P. Walter Professor of Computer Science and a Professor of Chemical Engineering at the University of Tulsa, Tulsa, Oklahoma, USA.

The use of computer virtualization technologies has rapidly grown since the early 2000's. Factors driving this growth include the ever-increasing utilization of cloud computing as well as benefits to consolidating physical hardware within a data center. In addition to the growth of virtualization technologies, computer security incidents are also increasing. However, researchers have drawn attention to the problem that many of the traditional computer forensics tools and investigation techniques cannot be used to gather and analyze digital evidence obtained from virtualization technologies or cloud computing resources. To solve a part of this problem, this thesis proposes a new open source tool called ESXimager that securely acquires digital evidence from VMware ESXi hypervisors. The tool securely images selected virtual machine files running on VMware ESXi and ensures image integrity through the entire imaging process. Written in Perl and utilizing Tk, the tool makes use of an ESXi server's ability to execute shell commands. Bit-stream copies are created using the dd command, image integrity is verified using the MD5 and SHA1 hashing algorithms, and images are securely transferred to an external imaging machine with SFTP. With a secure image created, a forensics investigator can load the image into a separate computer forensics tool for analysis. ESXimager's capabilities

are validated in a small yet realistic test environment. The tool connects to an ESXi server, creates images of selected virtual machine files, calculates multiple hashes, and securely transfers images to a local imaging machine. In addition, the tool detects if the integrity of an image file is compromised. With some additional development and testing in a larger environment, this could potentially become the go-to tool used to acquire images from VMware ESXi hypervisors.

From Reactive to Proactive Process, Second Edition

Digital Forensics Explained

Third International ICST Conference, e-Forensics 2010, Shanghai, China, November 11-12, 2010, Revised Selected Papers

Guide to Computer Forensics and Investigations

Techno Security's Guide to Managing Risks for IT Managers, Auditors, and Investigators

An Emerging Technologies Guide to AR

Operating System Forensics

Digital forensics deals with the acquisition, preservation, examination, analysis and presentation of electronic evidence. Networked computing, wireless communications and portable electronic devices have expanded the role of digital forensics beyond traditional computer crime investigations. Practically every crime now involves some aspect of digital evidence; digital forensics provides the techniques and tools to articulate this evidence. Digital forensics also has myriad intelligence applications. Furthermore, it has a vital role in information assurance -- investigations of security breaches yield valuable information that can be used to design more secure systems. Advances in Digital Forensics VIII describes original research results and innovative applications in the discipline of digital forensics. In addition, it highlights some of the major technical and legal issues related to digital evidence and electronic crime investigations. The areas of coverage include: themes and issues, forensic techniques, mobile phone forensics, cloud forensics, network forensics, and advanced forensic techniques. This book is the eighth volume in the annual series produced by the International Federation for Information Processing (IFIP) Working Group 11.9 on Digital Forensics, an international community of scientists, engineers and practitioners dedicated to advancing the state of the art of research and practice in digital forensics. The book contains a selection of twenty-two edited papers from the Eighth Annual IFIP WG 11.9 International Conference on Digital Forensics, held at the University of Pretoria, Pretoria, South Africa in the spring of 2012. Advances in Digital Forensics VIII is an important resource for researchers, faculty members and graduate students, as well as for practitioners and individuals engaged in research and development efforts for the law enforcement and intelligence communities. Gilbert Peterson is an Associate Professor of Computer Engineering at the Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA. Sujeet Shenoj is the F.P. Walter Professor of Computer Science and a Professor of Chemical Engineering at the University of Tulsa, Tulsa, Oklahoma, USA.

"This book provides a media for advancing research and the development of theory and practice of digital crime prevention and forensics, embracing a broad range of digital crime and forensics disciplines"--Provided by publisher.

This book provides digital forensic investigators, security professionals, and law enforcement with all of the information, tools, and utilities required to conduct forensic investigations of computers running any variant of the Macintosh OS X operating system, as well as the almost ubiquitous iPod and iPhone. Digital forensic investigators and security professionals subsequently can use data gathered from these devices to aid in the prosecution of criminal cases, litigate civil cases, audit adherence to federal regulatory compliance issues, and identify breach of corporate and government usage policies on networks. MAC Disks, Partitioning, and HFS+ File System Manage multiple partitions on a disk, and understand how the operating system stores data. FileVault and Time Machine Decrypt locked FileVault files and restore files backed up with Leopard's Time Machine. Recovering Browser History Uncover traces of Web-surfing activity in Safari with Web cache and .plist files Recovering Email Artifacts, iChat, and Other Chat Logs Expose communications data in iChat, Address Book, Apple's Mail, MobileMe, and Web-based email. Locating and Recovering Photos Use iPhoto, Spotlight, and shadow files to find artifacts of photos (e.g., thumbnails) when the originals no longer exist. Finding and Recovering QuickTime Movies and Other Video Understand video file formats--created with iSight, iMovie, or another application--and how to find them. PDF, Word, and Other Document Recovery Recover text documents and metadata with Microsoft Office, OpenOffice, Entourage, Adobe PDF, or other formats. Forensic Acquisition and Analysis of an iPod Document seizure of an iPod model and analyze the iPod image file and artifacts on a Mac. Forensic Acquisition and Analysis of an iPhone Acquire a physical image of an iPhone or iPod Touch and safely analyze without jailbreaking. Includes Unique Information about Mac OS X, iPod, iMac, and iPhone Forensic Analysis Unavailable Anywhere Else Authors Are Pioneering Researchers in the Field of Macintosh Forensics, with Combined Experience in Law Enforcement, Military, and Corporate Forensics

Threat actors, be they cyber criminals, terrorists, hacktivists or disgruntled employees, are employing sophisticated attack techniques and anti-forensics tools to cover their attacks and breach attempts. As emerging and hybrid technologies continue to influence daily business decisions, the proactive use of cyber forensics to better assess the risks that the exploitation of these technologies pose to enterprise-wide operations is rapidly becoming a strategic business objective. This book moves beyond the typical, technical approach to discussing cyber forensics processes and procedures. Instead, the authors examine how cyber forensics can be applied to identifying, collecting, and examining evidential data from emerging and hybrid technologies, while taking steps to proactively manage the influence and impact, as well as the policy and governance aspects of these technologies and their effect on business operations. A world-class team of cyber forensics researchers, investigators, practitioners and law enforcement professionals have come together to provide the reader with insights and recommendations into the proactive application of cyber forensic methodologies and procedures to both protect data and to identify digital evidence related to the misuse of these data. This book is an essential guide for both the technical and non-technical executive, manager, attorney, auditor, and general practitioner who is seeking an authoritative source on how cyber forensics may be applied to both evidential data collection and to proactively managing today's and tomorrow's emerging and hybrid technologies. The book will also serve as a primary or supplemental text in both under- and post-graduate academic programs addressing information, operational and emerging technologies, cyber forensics, networks, cloud computing and cybersecurity.

Digital Forensics and Investigations

Information Security and Digital Forensics

Digital Forensics for Handheld Devices

A Digital Forensic Investigator's Guide to Virtual Environments

Applications for Investigation Processes

Mastering Windows Network Forensics and Investigation

Cybercrime and Cloud Forensics

Virtualization and Forensics: A Digital Forensic Investigators Guide to Virtual Environments provides an introduction to virtualized environments and their implications on forensic investigations. It

emphasizes the need for organizations using virtualization to be proactive rather than reactive. Being proactive means learning the methods in this book to train staff, so when an incident occurs, they can quickly perform the forensics and minimize the damage to their systems. The book is organized into three parts. Part I deals with the virtualization process and the different types of virtualized environments. It explains how virtualization happens along with the various methods of virtualization, hypervisors, and the main categories of virtualization. It discusses server virtualization, desktop virtualization, and the various portable virtualization programs, emulators, and appliances. Part II details how virtualization interacts with the basic forensic process. It describes the methods used to find virtualization artifacts in dead and live environments, and identifies the virtual activities that affect the examination process. Part III addresses advanced virtualization issues, such as the challenges of virtualized environments, cloud computing, and the future of virtualization. Named a 2011 Best Digital Forensics Book by InfoSec Reviews Gives you the end-to-end knowledge needed to identify server, desktop, and portable virtual environments, including: VMware, Parallels, Microsoft, and Sun Covers technological advances in virtualization tools, methods, and issues in digital forensic investigations Explores trends and emerging technologies surrounding virtualization technology Digital forensics deals with the acquisition, preservation, examination, analysis and presentation of electronic evidence. Computer networks, cloud computing, smartphones, embedded devices and the Internet of Things have expanded the role of digital forensics beyond traditional computer crime investigations. Practically every crime now involves some aspect of digital evidence; digital forensics provides the techniques and tools to articulate this evidence in legal proceedings. Digital forensics also has myriad intelligence applications; furthermore, it has a vital role in cyber security -- investigations of security breaches yield valuable information that can be used to design more secure and resilient systems. Advances in Digital Forensics XV describes original research results and innovative applications in the discipline of digital forensics. In addition, it highlights some of the major technical and legal issues related to digital evidence and electronic crime investigations. The areas of coverage include: forensic models, mobile and embedded device forensics, filesystem forensics, image forensics, and forensic techniques. This book is the fifteenth volume in the annual series produced by the International Federation for Information Processing (IFIP) Working Group 11.9 on Digital Forensics, an international community of scientists, engineers and practitioners dedicated to advancing the state of the art of research and practice in digital forensics. The book contains a selection of fourteen edited papers from the Fifteenth Annual IFIP WG 11.9 International Conference on Digital Forensics, held in Orlando, Florida, USA in the winter of 2019. Advances in Digital Forensics XV is an important resource for researchers, faculty members and graduate students, as well as for practitioners and individuals engaged in research and development efforts for the law enforcement and intelligence communities.

Operating System Forensics is the first book to cover all three critical operating systems for digital forensic investigations in one comprehensive reference. Users will learn how to conduct successful digital forensic examinations in Windows, Linux, and Mac OS, the methodologies used, key technical concepts, and the tools needed to perform examinations. Mobile operating systems such as Android, iOS, Windows, and Blackberry are also covered, providing everything practitioners need to conduct a forensic investigation of the most commonly used operating systems, including technical details of how each operating system works and how to find artifacts. This book walks you through the critical components of investigation and operating system functionality, including file systems, data recovery, memory forensics, system configuration, Internet access, cloud computing, tracking artifacts, executable layouts, malware, and log files. You'll find coverage of key technical topics like Windows Registry, /etc directory, Web browsers caches, Mbox, PST files, GPS data, ELF, and more. Hands-on exercises in each chapter drive home the concepts covered in the book. You'll get everything you need for a successful forensics examination, including incident response tactics and legal requirements. Operating System Forensics is the only place you'll find all this covered in one book. Covers digital forensic investigations of the three major operating systems, including Windows, Linux, and Mac OS Presents the technical details of each operating system, allowing users to find artifacts that might be missed using automated tools Hands-on exercises drive home key concepts covered in the book. Includes discussions of cloud, Internet, and major mobile operating systems such as Android and iOS

Updated with the latest advances from the field, GUIDE TO COMPUTER FORENSICS AND INVESTIGATIONS, Fifth Edition combines all-encompassing topic coverage and authoritative information from seasoned experts to deliver the most comprehensive forensics resource available. This proven author team's wide ranging areas of expertise mirror the breadth of coverage provided in the book, which focuses on techniques and practices for gathering and analyzing evidence used to solve crimes involving computers. Providing clear instruction on the tools and techniques of the trade, it introduces readers to every step of the computer forensics investigation-from lab set-up to testifying in court. It also details step-by-step guidance on how to use current forensics software. Appropriate for learners new to the field, it is also an excellent refresher and technology update for professionals in law enforcement, investigations, or computer security. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Forensics in Telecommunications, Information and Multimedia

How to Defend the Enterprise Against Attack

Advances in Digital Forensics XVI

A Practical Guide Using Windows OS

Advances in Digital Forensics IX

Mastering Python Forensics

The Digital Forensics Guide for the Network Engineer

One of the biggest buzzwords in the IT industry for the past few years, virtualization has matured into a practical reality in many best-practice business scenarios, becoming an invaluable tool for security professionals at companies of every

In addition to saving time and other resources, virtualization affords unprecedented means for intrusion and malware detection, prevention, recovery, and analysis. Taking a practical approach in a growing market underserved by books, this handbook is the first to combine in one place the most important and sought-after uses of virtualization for enhanced security, isolation, sandboxing, disaster recovery and high availability, forensic analysis, and honeypotting. Already gaining buzz and traction in actual usage at an impressive rate, Gartner research indicates that virtualization will be the most significant trend in IT infrastructure and operations over the next four years. A recent report by IT research firm IDC predicts the virtualization market will grow from \$5.5 billion in 2006 to \$11.7 billion in 2011. With this growth in adoption, becoming increasingly important even for small and midsize businesses, security is becoming a much more serious concern, both in terms of how to secure virtualization and how virtualization can serve critical security objectives. Titles exist and are on the way to fill the need for securing virtualization, but security professionals do not yet have a book outlining the many security applications of virtualization that will become increasingly important in their job requirements. This book is the first to fill that need, covering tactics for isolating a virtual environment on the desktop for application testing, creating virtualized storage solutions for immediate recovery and high availability across a network, migrating physical systems to virtual systems for analysis, and creating virtual systems to entice hackers and expose potential threats to actual production systems. About the Technology An isolated environment created to run and test applications that might be a security risk. Recovering a compromised system is as easy as restarting the virtual machine to revert to the point before failure. Employing virtualization on actual production systems rather than just test environments, yields similar benefits for disaster recovery and high availability. While traditional disaster recovery methods require time-consuming reinstallation of the operating system and applications before restoring data, backing up to a virtual machine makes the recovery process much easier, faster, and efficient. The virtual machine can be restored to the same physical machine or an entirely different machine if the original machine has experienced irreparable hardware failure. Decreased downtime translates into higher availability of the system and increased productivity in the enterprise. Virtualization has been used for years in the field of forensic analysis, but new tools, techniques, and automation capabilities are making it an increasingly important tool. By means of virtualization, an investigator can create an exact working copy of a physical system on another machine, including hidden or encrypted partitions, without altering any data, allowing complete access for analysis. The investigator can also take a live "snapshot" to review or freeze the target computer at any point in time, before the suspect has a chance to cover his tracks or inflict further damage.

Master the art of digital forensics and analysis with Python About This Book Learn to perform forensic analysis and investigations with the help of Python, and gain an advanced understanding of the various Python libraries and frameworks. Analyze Python scripts to extract metadata and investigate forensic artifacts The writers, Dr. Michael Spreitzenbart and Johann Uhrmann, have used their experience to craft this hands-on guide to using Python for forensic analysis and investigations Who This Book Is For If you are a network security professional or forensics analyst who wants to gain a deeper understanding of performing forensic analysis with Python, then this book is for you. Some Python experience would be helpful What You Will Learn Explore the forensic analysis of different platforms such as Windows, Android, and vSphere Semantics automatically reconstruct major parts of the system activity and time-line Leverage Python ctypes for protocol decoding and artifacts from mobile, Skype, and browsers Discover how to utilize Python to improve the focus of your analysis Investigate volatile memory with the help of volatility on the Android and Linux platforms In Detail Digital forensic analysis is the process of examining and extracting data digitally and examining it. Python has the combination of power, expressiveness, and ease of use that makes it an essential complementary tool to the traditional, off-the-shelf digital forensic tools. This book will teach you how to perform forensic analysis and investigations by exploring the capabilities of various Python libraries. The book starts by explaining the building blocks of the Python programming language, especially ctypes in-depth, along with how to automate typical tasks in file system analysis, common correlation tasks to discover anomalies, as well as templates for investigations. We'll show you cryptographic algorithms that can be used during forensic investigations to check for known files or suspicious files with online services such as VirusTotal or Mobile-Sandbox. Moving on, you'll learn how to sniff on the network, generate and analyze network flows, and perform log correlation with the help of Python scripts and tools. You'll get an overview about the concepts of virtualization and how virtualization influences IT forensics, and you'll discover how to perform forensic analysis of a jailbroken/rooted mobile device that is based on iOS or Android. Finally, the book teaches you how to analyze volatile memory and search for known malware samples based on YARA rules. Style and approach This easy-to-follow book demonstrates forensic analysis techniques by showing you how to solve real-world scenarios step by step.

With the explosive growth in mobile phone usage and rapid rise in search engine technologies over the last decade, augmented reality (AR) is poised to be one of this decade's most disruptive technologies, as the information that is constantly flowing around us is brought into view, in real-time, through augmented reality. In this cutting-edge book, the authors outline and discuss the latest before-published information about augmented reality and its capabilities. With coverage of mobile, desktop, development, challenges, and gaming, this book gives you a comprehensive understanding of what augmented reality is, what it can do, what is in store for the future and most importantly: how to benefit from using AR in our lives and careers. Educates readers on how to use augmented reality regardless of industry Provides an in-depth understanding of AR and ideas ranging from new business applications to new crime fighting methods Includes actual examples and case studies from both private and government applications

The volume Software Engineering Perspectives and Application in Intelligent Systems presents new approaches and methods for solving real-world problems, and in particular, exploratory research that describes novel approaches in the field of Software Engineering. Particular emphasis is laid on modern trends in selected fields of interest. New algorithms or methods in a variety of fields are also presented. The 5th Computer Science On-line Conference (CSOC 2016) is intended to provide an international forum for discussions on the latest research results in all areas related to Computer Science. The addressed topics are the theoretical foundations and applications of Computer Science, Artificial Intelligences, Cybernetics, Automation Control Theory and Software

Engineering.

Digital Forensics Basics

Information Security Management Handbook, Sixth Edition

Investigating the Cyber Breach

Advances in Digital Forensics VIII

Advances in Digital Forensics V

Including Sandboxing, Disaster Recovery, High Availability, Forensic Analysis, and Honeypotting

Handbook of Research on Computational Forensics, Digital Crime, and Investigation: Methods and Solutions

Memory forensics provides cutting edge technology to help investigate digital attacks Memory forensics is the art of analyzing computer memory (RAM) to solve digital crimes. As a follow-up to the best seller Malware Analyst's Cookbook, experts in the fields of malware, security, and digital forensics bring you a step-by-step guide to memory forensics—now the most sought after skill in the digital forensics and incident response fields. Beginning with introductory concepts and moving toward the advanced, *The Art of Memory Forensics: Detecting Malware and Threats in Windows, Linux, and Mac* Memory is based on a five day training course that the authors have presented to hundreds of students. It is the only book on the market that focuses exclusively on memory forensics and how to deploy such techniques properly. Discover memory forensics techniques: How volatile memory analysis improves digital investigations Proper investigative steps for detecting stealth malware and advanced threats How to use free, open source tools for conducting thorough memory forensics Ways to acquire memory from suspect systems in a forensically sound manner The next era of malware and security breaches are more sophisticated and targeted, and the volatile memory of a computer is often overlooked or destroyed as part of the incident response process. *The Art of Memory Forensics* explains the latest technological innovations in digital forensics to help bridge this gap. It covers the most popular and recently released versions of Windows, Linux, and Mac, including both the 32 and 64-bit editions.

A step-by-step guide to identifying and defending against attacks on the virtual environment As more and more data is moved into virtual environments the need to secure them becomes increasingly important. Useful for service providers as well as enterprise and small business IT professionals the book offers a broad look across virtualization used in various industries as well as a narrow view of vulnerabilities unique to virtual environments. A companion DVD is included with recipes and testing scripts. Examines the difference in a virtual model versus traditional computing models and the appropriate technology and procedures to defend it from attack Dissects and exposes attacks targeted at the virtual environment and the steps necessary for defense Covers information security in virtual environments: building a virtual attack lab, finding leaks, getting a side-channel, denying or compromising services, abusing the hypervisor, forcing an interception, and spreading infestations Accompanying DVD includes hands-on examples and code This how-to guide arms IT managers, vendors, and architects of virtual environments with the tools they need to protect against common threats.

The Definitive, Up-to-Date Guide to Digital Forensics The rapid proliferation of cyber crime is increasing the demand for digital forensics experts in both law enforcement and in the private sector. In *Digital Archaeology*, expert practitioner Michael Graves has written the most thorough, realistic, and up-to-date guide to the principles and techniques of modern digital forensics. Graves begins by providing a solid understanding of the legal underpinnings of and critical laws affecting computer forensics, including key principles of evidence and case law. Next, he explains how to systematically and thoroughly investigate computer systems to unearth crimes or other misbehavior, and back it up with evidence that will stand up in court. Drawing on the analogy of archaeological research, Graves explains each key tool and method investigators use to reliably uncover hidden information in digital systems. His detailed demonstrations often include the actual syntax of command-line utilities. Along the way, he presents exclusive coverage of facilities management, a full chapter on the crucial topic of first response to a digital crime scene, and up-to-the-minute coverage of investigating evidence in the cloud. Graves concludes by presenting coverage of important professional and business issues associated with building a career in digital forensics, including current licensing and certification requirements. Topics Covered Include Acquiring and analyzing data in ways consistent with forensic procedure Recovering and examining e-mail, Web, and networking activity Investigating users' behavior on mobile devices Overcoming anti-forensics measures that seek to prevent data capture and analysis Performing comprehensive electronic discovery in connection with lawsuits Effectively managing cases and documenting the evidence you find Planning and building your career in digital forensics *Digital Archaeology* is a key resource for anyone preparing for a career as a professional investigator; for IT professionals who are sometimes called upon to assist in investigations; and for those seeking an explanation of the processes involved in preparing an effective defense, including how to avoid the legally indefensible destruction of digital evidence.

This book constitutes the thoroughly refereed post-conference proceedings of the Third International ICST Conference on Forensic Applications and Techniques in Telecommunications, Information and Multimedia, E-Forensics 2010, held in Shanghai, China, in November 2010. The 32 revised full papers presented were carefully reviewed and selected from 42 submissions in total. These, along with 5 papers from a collocated workshop of E-Forensics Law, cover a wide range of topics including digital evidence handling, data carving, records tracing, device forensics, data tamper identification, and mobile device locating.

A Digital Forensic Investigator 's Guide to Virtual Environments

Secure Acquisition of Digital Evidence from VMware ESXi Hypervisors

The Art of Memory Forensics

Proceedings of the 5th Computer Science On-line Conference 2016 (CSOC2016), Vol 2

First International Conference, ISDF 2009, London, United Kingdom, September 7-9, 2009, Revised Selected Papers

Mastering Microsoft Virtualization

Computer Forensics

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"This book presents a collection of research and case studies of applications for investigation processes in cloud computing environments, offering perspectives of cloud customers, security architects as well as law enforcement agencies on the new area of cloud forensics"--

Investigating the Cyber Breach The Digital Forensics Guide for the Network Engineer · Understand the realities of cybercrime and today's attacks · Build a digital forensics lab to test tools and methods, and gain expertise · Take the right actions as soon as you discover a breach · Determine the full scope of an investigation and the role you'll play · Properly collect, document, and preserve evidence and data · Collect and analyze data from PCs, Macs, IoT devices, and other endpoints · Use packet logs, NetFlow, and scanning to build timelines, understand network activity, and collect evidence · Analyze iOS and Android devices, and understand encryption-related obstacles to investigation · Investigate and trace email, and identify fraud or abuse · Use social media to investigate individuals or online identities · Gather, extract, and analyze breach data with Cisco tools and techniques · Walk through common breaches and responses from start to finish · Choose the right tool for each task, and explore alternatives that might also be helpful The professional's go-to digital forensics resource for countering attacks right now Today, cybersecurity and networking professionals know they can't possibly prevent every breach, but they can substantially reduce risk by quickly identifying and blocking breaches as they occur. Investigating the Cyber Breach: The Digital Forensics Guide for the Network Engineer is the first comprehensive guide to doing just that. Writing for working professionals, senior cybersecurity experts Joseph Muniz and Aamir Lakhani present up-to-the-minute techniques for hunting attackers, following their movements within networks, halting exfiltration of data and intellectual property, and collecting evidence for investigation and prosecution. You'll learn how to make the most of today's best open source and Cisco tools for cloning, data analytics, network and endpoint breach detection, case management, monitoring, analysis, and more. Unlike digital forensics books focused primarily on post-attack evidence gathering, this one offers complete coverage of tracking threats, improving intelligence, rooting out dormant malware, and responding effectively to breaches underway right now. This book is part of the Networking Technology: Security Series from Cisco Press®, which offers networking professionals valuable information for constructing efficient networks, understanding new technologies, and building successful careers.

Use this hands-on, introductory guide to understand and implement digital forensics to investigate computer crime using Windows, the most widely used operating system. This book provides you with the necessary skills to identify an intruder's footprints and to gather the necessary digital evidence in a forensically sound manner to prosecute in a court of law. Directed toward users with no experience in the digital forensics field, this book provides guidelines and best practices when conducting investigations as well as teaching you how to use a variety of tools to investigate computer crime. You will be prepared to handle problems such as law violations, industrial espionage, and use of company resources for private use. Digital Forensics Basics is written as a series of tutorials with each task demonstrating how to use a specific computer forensics tool or technique. Practical information is provided and users can read a task and then implement it directly on their devices. Some theoretical information is presented to define terms used in each technique and for users with varying IT skills. What You'll Learn Assemble computer forensics lab requirements, including workstations, tools, and more Document the digital crime scene, including preparing a sample chain of custody form Differentiate between law enforcement agency and corporate investigations Gather intelligence using OSINT sources Acquire and analyze digital evidence Conduct

in-depth forensic analysis of Windows operating systems covering Windows 10-specific feature forensics Utilize anti-forensic techniques, including steganography, data destruction techniques, encryption, and anonymity techniques Who This Book Is For Police and other law enforcement personnel, judges (with no technical background), corporate and nonprofit management, IT specialists and computer security professionals, incident response team members, IT military and intelligence services officers, system administrators, e-business security professionals, and banking and insurance professionals

Software Engineering Perspectives and Application in Intelligent Systems

Cyber Forensics

Open Source Software for Digital Forensics

People, Process, and Technologies to Defend the Enterprise

Virtualization and Forensics

Examining Emerging and Hybrid Technologies

Incident Response Essentials

To reduce the risk of digital forensic evidence being called into question in judicial proceedings, it is important to have a rigorous methodology and set of procedures for conducting digital forensic investigations and examinations. Digital forensic investigation in the cloud computing environment, however, is in infancy due to the comparatively recent prevalence of cloud computing. Cloud Storage Forensics presents the first evidence-based cloud forensic framework. Using three popular cloud storage services and one private cloud storage service as case studies, the authors show you how their framework can be used to undertake research into the data remnants on both cloud storage servers and client devices when a user undertakes a variety of methods to store, upload, and access data in the cloud. By determining the data remnants on client devices, you gain a better understanding of the types of terrestrial artifacts that are likely to remain at the Identification stage of an investigation. Once it is determined that a cloud storage service account has potential evidence of relevance to an investigation, you can communicate this to legal liaison points within service providers to enable them to respond and secure evidence in a timely manner. Learn to use the methodology and tools from the first evidenced-based cloud forensic framework Case studies provide detailed tools for analysis of cloud storage devices using popular cloud storage services Includes coverage of the legal implications of cloud storage forensic investigations Discussion of the future evolution of cloud storage and its impact on digital forensics

Digital forensics deals with the acquisition, preservation, examination, analysis and presentation of electronic evidence. Networked computing, wireless communications and portable electronic devices have expanded the role of digital forensics beyond traditional computer crime investigations. Practically every crime now involves some aspect of digital evidence; digital forensics provides the techniques and tools to articulate this evidence. Digital forensics also has myriad intelligence applications. Furthermore, it has a vital role in information assurance - investigations of security breaches yield valuable information that can be used to design more secure systems. Advances in Digital Forensics V describes original research results and innovative applications in the discipline of digital forensics. In addition, it highlights some of the major technical and legal issues related to digital evidence and electronic crime investigations. The areas of coverage include: themes and issues, forensic techniques, integrity and privacy, network forensics, forensic computing, investigative techniques, legal issues and evidence management. This book is the fifth volume in the annual series produced by the International Federation for Information Processing (IFIP) Working Group 11.9 on Digital Forensics, an international community of scientists, engineers and practitioners dedicated to advancing the state of the art of research and practice in digital forensics. The book contains a selection of twenty-three edited papers from the Fifth Annual IFIP WG 11.9 International Conference on Digital Forensics, held at the National Center for Forensic Science, Orlando, Florida, USA in the spring of 2009. Advances in Digital Forensics V is an important resource for researchers, faculty members and graduate students, as well as for practitioners and individuals engaged in research and development efforts for the law enforcement and intelligence communities.

Implementing Digital Forensic Readiness: From Reactive to Proactive Process, Second Edition presents the optimal way for digital forensic and IT security professionals to implement a proactive approach to digital forensics. The book details how digital forensic processes can align strategically with business operations and an already existing information and data security program. Detailing proper collection, preservation, storage, and presentation of digital evidence, the procedures outlined illustrate how digital evidence can be an essential tool in mitigating risk and reducing the impact of both internal and external, digital incidents, disputes, and crimes. By utilizing a digital forensic readiness approach and stances, a company's preparedness and ability to take action quickly and respond as needed. In addition, this approach enhances the ability to gather evidence, as well as the relevance, reliability, and credibility of any such evidence. New chapters to this edition include Chapter 4 on Code of Ethics and Standards, Chapter 5 on Digital Forensics as a Business, and Chapter 10 on Establishing Legal Admissibility. This book offers best practices to professionals on enhancing their digital forensic program, or how to start and develop one the right way for effective forensic readiness in any corporate or enterprise setting.

Learn virtualization skills by building your own virtual machine Virtualization Essentials, Second Edition provides new and aspiring IT professionals with immersive training in working with virtualization environments. Clear, straightforward discussion simplifies complex concepts, and the hands-on tutorial approach helps you quickly get up to speed on the fundamentals. You'll begin by learning what virtualization is and how it works within the computing environment, then you'll dive right into building your own virtual machine. You'll learn how to set up the CPU, memory, storage, networking, and more as you master the skills that put you in-demand on the job market. Each

chapter focuses on a specific goal, and concludes with review questions that test your understanding as well as suggested exercises that help you reinforce what you've learned. As more and more companies are leveraging virtualization, it's imperative that IT professionals have the skills and knowledge to interface with virtualization-centric infrastructures. This book takes a learning-by-doing approach to give you hands-on training and a core understanding of virtualization. Understand how virtualization works Create a virtual machine by scratch and migration Configure and manage basic components and supporting devices Develop the necessary skill set to work in today's virtual world Virtualization was initially used to build test labs, but its use has expanded to become best practice for a tremendous variety of IT solutions including high availability, business continuity, dynamic IT, and more. Cloud computing and DevOps rely on virtualization technologies, and the exponential spread of these and similar applications make virtualization proficiency a major value-add for any IT professional. Virtualization Essentials, Second Edition provides accessible, user-friendly, informative virtualization training for the forward-looking pro.

Cloud Storage Forensics

9th IFIP WG 11.9 International Conference on Digital Forensics, Orlando, FL, USA, January 28-30, 2013, Revised

Selected Papers

Digital Archaeology

Implementing Digital Forensic Readiness

15th IFIP WG 11.9 International Conference, Orlando, FL, USA, January 28-29, 2019, Revised Selected Papers

The Art and Science of Digital Forensics

Detecting Malware and Threats in Windows, Linux, and Mac Memory

An authoritative guide to investigating high-technology crimes Internet crime is seemingly ever on the rise, making the need for a comprehensive resource on how to investigate these crimes even more dire. This professional-level book--aimed at law enforcement personnel, prosecutors, and corporate investigators--provides you with the training you need in order to acquire the sophisticated skills and software solutions to stay one step ahead of computer criminals. Specifies the techniques needed to investigate, analyze, and document a criminal act on a Windows computer or network Places a special emphasis on how to thoroughly investigate criminal activity and now just perform the initial response Walks you through ways to present technically complicated material in simple terms that will hold up in court Features content fully updated for Windows Server 2008 R2 and Windows 7 Covers the emerging field of Windows Mobile forensics Also included is a classroom support package to ensure academic adoption, Mastering Windows Network Forensics and Investigation, 2nd Edition offers help for investigating high-technology crimes.

Every computer crime leaves tracks--you just have to know where to find them. This book shows you how to collect and analyze the digital evidence left behind in a digital crime scene. Computers have always been susceptible to unwanted intrusions, but as the sophistication of computer technology increases so does the need to anticipate, and safeguard against, a corresponding rise in computer-related criminal activity. Computer forensics, the newest branch of computer security, focuses on the aftermath of a computer security incident. The goal of computer forensics is to conduct a structured investigation to determine exactly what happened, who was responsible, and to perform the investigation in such a way that the results are useful in a criminal proceeding. Written by two experts in digital investigation, Computer Forensics provides extensive information on how to handle the computer as evidence. Kruse and Heiser walk the reader through the complete forensics process--from the initial collection of evidence through the final report. Topics include an overview of the forensic relevance of encryption, the examination of digital evidence for clues, and the most effective way to present your evidence and conclusions in court. Unique forensic issues associated with both the Unix and the Windows NT/2000 operating systems are thoroughly covered. This book provides a detailed methodology for collecting, preserving, and effectively using evidence by addressing the three A's of computer forensics: Acquire the evidence without altering or damaging the original data. Authenticate that your recorded evidence is the same as the original seized data. Analyze the data without modifying the recovered data. Computer Forensics is written for everyone who is responsible for investigating digital criminal incidents or who may be interested in the techniques that such investigators use. It is equally helpful to those investigating hacked web servers, and those who are investigating the source of illegal pornography.

Virtualization and Forensics: A Digital Forensic Investigators Guide to Virtual Environments offers an in-depth view into the world of virtualized environments and the implications they have on forensic investigations. Named a 2011 Best Digital Forensics Book by InfoSec Reviews, this guide gives you the end-to-end knowledge needed to identify server, desktop, and portable virtual environments, including: VMware, Parallels, Microsoft, and Sun. It covers technological advances in virtualization tools, methods, and issues in digital forensic investigations, and explores trends and emerging

technologies surrounding virtualization technology. This book consists of three parts. Part I explains the process of virtualization and the different types of virtualized environments. Part II details how virtualization interacts with the basic forensic process, describing the methods used to find virtualization artifacts in dead and live environments as well as identifying the virtual activities that affect the examination process. Part III addresses advanced virtualization issues, such as the challenges of virtualized environments, cloud computing, and the future of virtualization. This book will be a valuable resource for forensic investigators (corporate and law enforcement) and incident response professionals. Named a 2011 Best Digital Forensics Book by InfoSec Reviews Gives you the end-to-end knowledge needed to identify server, desktop, and portable virtual environments, including: VMware, Parallels, Microsoft, and Sun Covers technological advances in virtualization tools, methods, and issues in digital forensic investigations Explores trends and emerging technologies surrounding virtualization technology

The field of computer forensics has experienced significant growth recently and those looking to get into the industry have significant opportunity for upward mobility. Focusing on the concepts investigators need to know to conduct a thorough investigation, *Digital Forensics Explained* provides an overall description of the forensic practice from a practitioner's perspective. Starting with an overview, the text describes best practices based on the author's decades of experience conducting investigations and working in information technology. It illustrates the forensic process, explains what it takes to be an investigator, and highlights emerging trends. Filled with helpful templates and contributions from seasoned experts in their respective fields, the book includes coverage of: Internet and email investigations Mobile forensics for cell phones, iPads, music players, and other small devices Cloud computing from an architecture perspective and its impact on digital forensics Anti-forensic techniques that may be employed to make a forensic exam more difficult to conduct Recoverability of information from damaged media The progression of a criminal case from start to finish Tools that are often used in an examination, including commercial, free, and open-source tools; computer and mobile tools; and things as simple as extension cords Social media and social engineering forensics Case documentation and presentation, including sample summary reports and a cover sheet for a cell phone investigation The text includes acquisition forms, a sequential process outline to guide your investigation, and a checklist of supplies you'll need when responding to an incident. Providing you with the understanding and the tools to deal with suspects who find ways to make their digital activities hard to trace, the book also considers cultural implications, ethics, and the psychological effects that digital forensics investigations can have on investigators.

Methods and Solutions

8th IFIP WG 11.9 International Conference on Digital Forensics, Pretoria, South Africa, January 3-5, 2012, Revised Selected Papers

Evolution of Traditional Digital Forensics in Virtualization by Using Virtual Machine Introspection

Augmented Reality

Advances in Digital Forensics XV

Securing the Virtual Environment, Included DVD

While cloud computing continues to transform developments in information technology services, these advancements have contributed to a rise in cyber attacks; producing an urgent need to extend the applications of investigation processes. *Cybercrime and Cloud Forensics: Applications for Investigation Processes* presents a collection of research and case studies of applications for investigation processes in cloud computing environments. This reference source brings together the perspectives of cloud customers, security architects, and law enforcement agencies in the developing area of cloud forensics. ISDF 2009, the First International Conference on Information Security and Digital Forensics, was held at City University London during September 7-8, 2009. The conference was organized as a meeting point for leading national and international experts of information security and digital forensics. The conference was rewarding in many ways; ISDF 2009 was an exciting and vibrant event, with 4 keynote talks, 25 invited talks and 18 full-paper presentations and those attending had the opportunity to meet and talk with many distinguished people who are responsible for shaping the area of information security. This conference was organized as part of two major research projects funded by the UK Engineering and Physical Sciences Research Council in the areas of Security and Digital Forensics. I would like to thank all the people who contributed to the technical program. The most apparent of these are the Indian delegates who all accepted our invite to give presentations at this conference. Less apparent perhaps is the terrific work of the members of the Technical Program Committee, especially in reviewing the papers, which is a critical and time-consuming task. I would like to thank Raj Rajarajan (City University London) for making the idea of the ISDF 2009 conference a reality with his hard work. Last but not least, I would like to thank all the authors who submitted papers, making the conference possible, and

the authors of accepted papers for their cooperation. Dasun Weerasinghe
Open Source Software for Digital Forensics is the first book dedicated to the use of FLOSS (Free Libre Open Source Software) in computer forensics. It presents the motivations for using FLOSS applications as tools for collection, preservation and analysis of digital evidence in computer and network forensics. It also covers extensively several forensic FLOSS tools, their origins and evolution. Open Source Software for Digital Forensics is based on the OSSCoNF workshop, which was held in Milan, Italy, September 2008 at the World Computing Congress, co-located with OSS 2008. This edited volume is a collection of contributions from researchers and practitioners world wide. Open Source Software for Digital Forensics is designed for advanced level students and researchers in computer science as a secondary text and reference book. Computer programmers, software developers, and digital forensics professionals will also find this book to be a valuable asset.

Digital forensics has been a discipline of Information Security for decades now. Its principles, methodologies, and techniques have remained consistent despite the evolution of technology, and, ultimately, it and can be applied to any form of digital data. However, within a corporate environment, digital forensic professionals are particularly challenged. They must maintain the legal admissibility and forensic viability of digital evidence in support of a broad range of different business functions that include incident response, electronic discovery (ediscovery), and ensuring the controls and accountability of such information across networks. Digital Forensics and Investigations: People, Process, and Technologies to Defend the Enterprise provides the methodologies and strategies necessary for these key business functions to seamlessly integrate digital forensic capabilities to guarantee the admissibility and integrity of digital evidence. In many books, the focus on digital evidence is primarily in the technical, software, and investigative elements, of which there are numerous publications. What tends to get overlooked are the people and process elements within the organization. Taking a step back, the book outlines the importance of integrating and accounting for the people, process, and technology components of digital forensics. In essence, to establish a holistic paradigm—and best-practice procedure and policy approach—to defending the enterprise. This book serves as a roadmap for professionals to successfully integrate an organization's people, process, and technology with other key business functions in an enterprise's digital forensic capabilities.

16th IFIP WG 11.9 International Conference, New Delhi, India, January 6-8, 2020, Revised Selected Papers
Fifth IFIP WG 11.9 International Conference on Digital Forensics, Orlando, Florida, USA, January 26-28, 2009, Revised Selected Papers

Mac OS X, iPod, and iPhone Forensic Analysis DVD Toolkit

Virtualization Essentials

Virtualization for Security

Cybercrime and Cloud Forensics: Applications for Investigation Processes

"This book contains some of the most up-to-date information available anywhere on a wide variety of topics related to Techno Security. As you read the book, you will notice that the authors took the approach of identifying some of the risks, threats, and vulnerabilities and then discussing the countermeasures to address them. Some of the topics and thoughts discussed here are as new as tomorrow's headlines, whereas others have been around for decades without being properly addressed. I hope you enjoy this book as much as we have enjoyed working with the various authors and friends during its development. —Donald Withers, CEO and Cofounder of TheTrainingCo. • Jack Wiles, on Social Engineering offers up a potpourri of tips, tricks, vulnerabilities, and lessons learned from 30-plus years of experience in the worlds of both physical and technical security. • Russ Rogers on the Basics of Penetration Testing illustrates the standard methodology for penetration testing: information gathering, network enumeration, vulnerability identification, vulnerability exploitation, privilege escalation, expansion of reach, future access, and information compromise. • Johnny Long on No Tech Hacking shows how to hack without touching a computer using tailgating, lock bumping, shoulder surfing, and dumpster diving. • Phil Drake on Personal, Workforce, and Family Preparedness covers the basics of creating a plan for you and your family, identifying and obtaining the supplies you will need in an emergency. • Kevin O'Shea on Seizure of Digital Information discusses collecting hardware and information from the scene. • Amber Schroader on Cell Phone Forensics writes on new methods and guidelines for digital forensics. • Dennis O'Brien on RFID: An Introduction, Security Issues, and Concerns discusses how this well-intended technology has been eroded and used for fringe implementations. • Ron Green on Open Source Intelligence details how a good Open Source Intelligence program can help you create leverage in negotiations, enable smart decisions regarding the selection of goods and services, and help avoid pitfalls and hazards. • Raymond Blackwood on Wireless Awareness: Increasing the Sophistication of Wireless Users maintains it is the technologist's responsibility to educate, communicate, and support users despite their lack of interest in understanding how it works. • Greg Kipper on What is Steganography? provides a solid understanding of the basics of steganography, what it can and can't do, and arms you with the information you need to set your career path. • Eric Cole on Insider Threat discusses why the insider threat is worse than the external threat and the effects of insider threats on a company. Internationally known experts in information security share their wisdom Free pass to Techno Security Conference for everyone who purchases a book—\$1,200 value

Approximately 80 percent of the world's population now owns a cell phone, which can hold evidence or contain logs about communications concerning a crime. Cameras, PDAs, and GPS devices can also contain information related to corporate policy infractions and crimes. Aimed to prepare investigators in the public and private sectors, Digital Forensics for Handheld Devices examines both the theoretical and practical aspects of investigating handheld digital devices. This book touches on all areas of mobile device forensics, including topics from the legal, technical, academic, and social aspects of the discipline. It provides guidance on how to seize data, examine it, and prepare it as evidence for court. This includes the use of chain of custody forms for seized evidence and Faraday Bags for digital devices to prevent further connectivity and tampering of evidence. Emphasizing the policies required in the work environment, the author provides readers with a clear understanding of the differences between a corporate investigation and a criminal investigation. The book also: Offers best practices for establishing an incident response policy and seizing data from company or privately owned digital devices Provides guidance in establishing dedicated examinations free of viruses, spyware, and connections to other devices that could taint evidence Supplies guidance on determining protocols for complicated crime scenes with external media and devices that may have connected with the handheld device Considering important privacy issues and the Fourth Amendment, this book facilitates an understanding of how to use digital forensic tools to investigate the complete range of available digital devices, including flash drives, cell phones, PDAs, digital cameras, and netbooks. It includes examples of commercially available digital forensic tools and ends with a discussion of the education and certifications required for various careers in mobile device forensics.