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Malware Forensics Field Guide for Windows Systems - Cameron H. Malin 2012-06-13
Dissecting the dark side of the Internet with its infectious worms, botnets, rootkits, and Trojan horse programs (known as malware) is a treaterous condition for any forensic investigator or analyst. Written by information security experts with real-world investigative experience, Malware Forensics Field Guide for Windows Systems is a "tool" with checklists for specific tasks, case studies of difficult situations, and expert analyst tips. *A condensed hand-held guide complete with on-the-job tasks and checklists *Specific for Windows-based systems, the largest running OS in the world *Authors are world-renowned leaders in investigating and analyzing malicious code

Digital Forensics - John Sammons 2015-12-14
Information security practitioners are faced with a never-ending stream of threats and attacks, and need to be aware of how these threats and attacks are continually evolving. One of the primary challenges is keeping up with the sheer volume of information around these threats and making sense of the patterns as they evolve. Information Security and Digital Forensics: Threatscape and Best Practices provides you with incisive analysis from a panel of expert authors, led by John Sammons, bestselling author of The Basics of Digital Forensics. This complete reference surveys the landscape of information security threats and provides a coherent overview of the threatscape in a broad range of topics, providing practitioners and researchers alike with a comprehensive and coherent overview of the threat landscape and what can be done to manage and prepare for it, including insights in each of five core topics: Digital Forensics, Information Assurance/Security, CyberCrime, Open Source Intelligence, and Electronic Discovery.

Digital Forensics for Legal Professionals - Larry Daniel 2011-09-02
Section 1: What is Digital Forensics? Chapter 1. Digital Evidence is Everywhere Chapter 2. Overview of Digital Forensics Chapter 3. Digital Forensics -- The Sub-Disciplines Chapter 4. The Foundations of Digital Forensics -- Best Practices Chapter 5. Overview of Digital Forensics Tools Chapter 6. Digital Forensics at Work in the Legal System Section 2: Experts Chapter 7. Why Do I Need an Expert? Chapter 8. The Difference between Computer Experts and Digital Forensic Experts Chapter 9. Selecting a Digital Forensics Expert Chapter 10. What to Expect from an Expert Chapter 11. Approaches by Different Types of Examiners Chapter 12. Spotting a Problem Expert Chapter 13. Qualifying an Expert in Court Sections 3: Motions and Discovery Chapter 14. Overview of Digital Evidence Discovery Chapter 15. Discovery of Digital Evidence in Criminal Cases Chapter 16. Discovery of Digital Evidence in Civil Cases Chapter 17. Discovery of Computers and Storage Media Chapter 18. Discovery of Video Evidence Ch ...

Alternate Data Storage Forensics - Amber Schroader 2011-04-18
Learn to pull “digital fingerprints from alternate data storage (ADS) devices including: iPod,

Xbox, digital cameras and more from the cyber sleuths who train the Secret Service, FBI, and Department of Defense in bleeding edge digital forensics techniques. This book sets a new forensic methodology standard for investigators to use. This book begins by describing how alternate data storage devices are used to both move and hide data. From here a series of case studies using bleeding edge forensic analysis tools demonstrate to readers how to perform forensic investigations on a variety of ADS devices including: Apple iPods, Digital Video Recorders, Cameras, Gaming Consoles (Xbox, PS2, and PSP), Bluetooth devices, and more using state of the art tools. Finally, the book takes a look into the future at “not yet every day devices which will soon be common repositories for hiding and moving data for both legitimate and illegitimate purposes. Authors are undisputed leaders who train the Secret Service, FBI, and Department of Defense Book presents "one of a kind" bleeding edge information that absolutely can not be found anywhere else Today the industry has exploded and cyber investigators can be found in almost every field

Android Forensics - Andrew Hoog 2011-06-15

The open source nature of the platform has not only established a new direction for the industry, but enables a developer or forensic analyst to understand the device at the most fundamental level. Android Forensics covers an open source mobile device platform based on the Linux 2.6 kernel and managed by the Open Handset Alliance. The Android platform is a major source of digital forensic investigation and analysis. This book provides a thorough review of the Android platform including supported hardware devices, the structure of the Android development project and implementation of core services (wireless communication, data storage and other low-level functions). Finally, it will focus on teaching readers how to apply actual forensic techniques to recover data. Ability to forensically acquire Android devices using the techniques outlined in the book Detailed information about Android applications needed for forensics investigations Important information about SQLite, a file based structured data storage relevant for both Android and many other platforms.

High-Technology Crime Investigator's Handbook - Gerald L. Kovacich 2011-04-01

The high-technology crime investigator's profession is one of the fastest growing professions in the world today, as information security issues and crimes related to them are growing in number and magnitude at an ever-increasing pace. High-Technology Crime Investigator's Handbook, Second Edition, informs professionals of the potential risks of computer crimes, and serves as a guide to establishing and managing a high-technology crime investigative program. Each chapter is updated with the latest information and guidance, including added coverage of computer forensics and additional metrics to measure organizational performance. In addition, nine new chapters cover emerging trends in the field, and offer invaluable guidance on becoming a successful high-technology crime investigator. * Provides an understanding of the global information environment and its threats * Explains how to establish a high-technology crime investigations unit and prevention program * Presents material in an engaging, easy-to-follow manner that will appeal to investigators, law enforcement professionals, corporate security and information systems security professionals; as well as corporate and government managers

Digital Forensics with Open Source Tools - Cory Altheide 2011-03-29

Digital Forensics with Open Source Tools is the definitive book on investigating and analyzing computer systems and media using open source tools. The book is a technical procedural guide, and explains the use of open source tools on Mac, Linux and Windows systems as a platform for performing computer forensics. Both well-known and novel forensic methods are demonstrated using command-line and graphical open source computer forensic tools for examining a wide range of target systems and artifacts. Written by world-renowned forensic practitioners, this book uses the most current examination and analysis techniques in the field. It consists of 9 chapters that cover a range of topics such as the open source examination platform; disk and file system analysis; Windows systems and artifacts; Linux systems and artifacts; Mac OS X systems and artifacts; Internet artifacts; and automating analysis and extending capabilities. The book lends itself to use by students and those entering the field who do not have means to purchase new tools for different investigations. This book will appeal to forensic practitioners from areas including incident response teams and computer forensic investigators; forensic technicians from legal, audit, and consulting firms; and law enforcement agencies. Written by world-renowned forensic practitioners Details core concepts and techniques of forensic file system analysis Covers analysis of artifacts from the Windows, Mac, and Linux operating systems

Digital Forensics for Network, Internet, and Cloud Computing - Clint P Garrison 2010-07-02

Network forensics is an evolution of typical digital forensics, in which evidence is gathered from network traffic in near real time. This book will help security and forensics professionals as well as network administrators build a solid foundation of processes and controls to identify incidents and gather evidence from the network. Forensic scientists and investigators are some of the fastest growing jobs in the United States with over 70,000 individuals employed in 2008. Specifically in the area of cybercrime and digital forensics, the federal government is conducting a talent search for 10,000 qualified specialists. Almost every technology company has developed or is developing a cloud computing strategy. To cut costs, many companies are moving toward network-based applications like SalesForce.com, PeopleSoft, and HR Direct. Every day, we are moving companies' proprietary data into a cloud, which can be hosted anywhere in the world. These companies need to understand how to identify where their data is going and what they are sending. Key network forensics skills and tools are discussed-for example, capturing network traffic, using Snort for network-based forensics, using NetWitness Investigator for network traffic analysis, and deciphering TCP/IP. The current and future states of network forensics analysis tools are addressed. The admissibility of network-based traffic is covered as well as the typical life cycle of a network forensics investigation.

Placing the Suspect Behind the Keyboard - Brett Shavers 2013-02-01

Placing the Suspect Behind the Keyboard is the definitive book on conducting a complete investigation of a cybercrime using digital forensics techniques as well as physical investigative procedures. This book merges a digital analysis examiner's work with the work of a case investigator in order to build a solid case to identify and prosecute cybercriminals. Brett Shavers links traditional investigative techniques with high tech crime analysis in a manner that not only determines elements of crimes, but also places the suspect at the keyboard. This book is a first in combining investigative strategies of digital forensics analysis processes alongside physical investigative techniques in which the reader will gain a holistic approach to their current and future cybercrime investigations. Learn the tools and investigative principles of both physical and digital cybercrime investigations—and how they fit together to build a solid and complete case Master the techniques of conducting a holistic investigation that combines both digital and physical evidence to track down the "suspect behind the keyboard" The only book to combine physical and digital investigative techniques

Investigating Internet Crimes - Todd G. Shipley 2013-11-12

Written by experts on the frontlines, Investigating Internet Crimes provides seasoned and new investigators with the background and tools they need to investigate crime occurring in the online world. This invaluable guide provides step-by-step instructions for investigating Internet crimes, including locating, interpreting, understanding, collecting, and documenting online electronic evidence to benefit investigations. Cybercrime is the fastest growing area of crime as more criminals seek to exploit the speed, convenience and anonymity that the Internet provides to commit a diverse range of criminal activities. Today's online crime includes attacks against computer data and systems, identity theft, distribution of child pornography, penetration of online financial services, using social networks to commit crimes, and the deployment of viruses, botnets, and email scams such as phishing. Symantec's 2012 Norton Cybercrime Report stated that the world spent an estimated $110 billion to combat cybercrime, an average of nearly $200 per victim. Law enforcement agencies and corporate security officers around the world with the responsibility for enforcing, investigating and prosecuting cybercrime are overwhelmed, not only by the sheer number of crimes being committed but by a lack of adequate training material. This book provides that fundamental knowledge, including how to properly collect and document online evidence, trace IP addresses, and work undercover. Provides step-by-step instructions on how to investigate crimes online Covers how new software tools can assist in online investigations Discusses how to track down, interpret, and understand online electronic evidence to benefit investigations Details guidelines for collecting and documenting online evidence that can be presented in court

The Best Damn Cybercrime and Digital Forensics Book Period - Jack Wiles 2011-04-18

Electronic discovery refers to a process in which electronic data is sought, located, secured, and searched with the intent of using it as evidence in a legal case. Computer forensics is the application of computer investigation and analysis techniques to perform an investigation to find out exactly what happened on a computer and who was responsible. IDC estimates that the U.S. market for computer forensics will be grow from $252 million in 2004 to $630 million by 2009. Business is strong outside the United States, as well. By 2011, the estimated international market will be $1.8 billion dollars. The Techno Forensics Conference has increased in size by almost 50% in its second year; another example of the rapid growth in the market. This book is the first to combine cybercrime and digital forensic topics to provides law enforcement and IT security professionals with the information needed to manage a digital investigation. Everything needed for analyzing forensic data and recovering digital evidence can be found in one place, including instructions for building a digital forensics lab. * Digital investigation and forensics is a growing industry * Corporate I.T. departments investigating corporate espionage and criminal activities are learning as they go and need a comprehensive guide to e-discovery * Appeals to law enforcement agencies with limited budgets

Practical Forensic Imaging - Bruce Nikkel 2016-09-01

Forensic image acquisition is an important part of postmortem incident response and evidence collection. Digital forensic investigators acquire, preserve, and manage digital evidence to support civil and criminal cases; examine organizational policy violations; resolve disputes; and analyze cyber attacks. Practical Forensic Imaging takes a detailed look at how to secure and manage digital evidence using Linux-based command line tools. This essential guide walks you through the entire forensic acquisition process and covers a wide range of practical scenarios and situations related to the imaging of storage media. You'll learn how to: –Perform forensic imaging of magnetic hard disks, SSDs and flash drives, optical discs, magnetic tapes, and legacy technologies –Protect attached evidence media from accidental modification –Manage large forensic image files, storage capacity, image format conversion, compression, splitting, duplication, secure transfer and storage, and secure disposal –Preserve and verify evidence integrity with cryptographic and piecewise hashing, public key signatures, and RFC-3161 timestamping –Work with newer drive and interface technologies like NVME, SATA Express, 4K-native sector drives, SSHDs, SAS, UASP/USB3x, and Thunderbolt –Manage drive security such as ATA passwords; encrypted thumb drives; Opal self-encrypting drives; OS-encrypted drives using BitLocker, FileVault, and TrueCrypt; and others –Acquire usable images from more complex or challenging situations such as RAID systems, virtual machine images, and damaged media With its unique focus on digital forensic acquisition and evidence preservation, Practical Forensic Imaging is a valuable resource for experienced digital forensic investigators wanting to advance their Linux skills and experienced Linux administrators wanting to learn digital forensics. This is a must-have reference for every digital forensics lab.

iPhone and iOS Forensics - Andrew Hoog 2011-07-25

iPhone and iOS Forensics is a guide to the forensic acquisition and analysis of iPhone and iOS devices, and offers practical advice on how to secure iOS devices, data and apps. The book takes an in-depth look at methods and processes that analyze the iPhone/iPod in an official legal manner, so that all of the methods and procedures outlined in the text can be taken into any courtroom. It includes information data sets that are new and evolving, with official hardware knowledge from Apple itself to help aid investigators. This book consists of 7 chapters covering device features and functions; file system and data storage; iPhone and iPad data security; acquisitions; data and application analysis; and commercial tool testing. This book will appeal to forensic investigators (corporate and law enforcement) and incident response professionals. Learn techniques to forensically acquire the iPhone, iPad and other iOS devices Entire chapter focused on Data and Application Security that can assist not only forensic investigators, but also application developers and IT security managers In-depth analysis of many of the common applications (both default and downloaded), including where specific data is found within the file system

The Basics of Digital Forensics - John Sammons 2014-12-09

The Basics of Digital Forensics provides a foundation for people new to the digital forensics field. This book teaches you how to conduct examinations by discussing what digital forensics is, the methodologies used, key tactical concepts, and the tools needed to perform examinations. Details on digital forensics for computers, networks, cell phones, GPS, the cloud and the Internet are discussed. Also, learn how to collect evidence, document the scene, and how deleted data can be recovered. The new Second Edition of this book provides you with completely up-to-date real-world examples and all the key technologies used in digital forensics, as well as new coverage of network intrusion response, how hard drives are organized, and electronic discovery. You'll also learn how to incorporate quality assurance into an investigation, how to prioritize evidence items to examine (triage), case processing, and what goes into making an expert witness. The Second Edition also features expanded resources and references, including online resources that keep you current, sample legal documents, and suggested further reading. Learn what Digital Forensics entails Build a toolkit and prepare an investigative plan Understand the common artifacts to look for in an exam Second Edition features all-new coverage of hard drives, triage, network intrusion response, and electronic discovery; as well as updated case studies, expert interviews, and expanded resources and references

TechnoSecurity's Guide to E-Discovery and Digital Forensics - Jack Wiles 2011-10-13

TechnoSecurity's Guide to E-Discovery and Digital Forensics provides IT security professionals with the information (hardware, software, and procedural requirements) needed to create, manage and sustain a digital forensics lab and investigative team that can accurately and effectively analyze forensic data and recover digital evidence, while preserving the integrity of the electronic evidence for discovery and trial. Internationally known experts in computer forensics share their years of experience at the forefront of digital forensics Bonus chapters on how to build your own Forensics Lab 50% discount to the upcoming Techno Forensics conference for everyone who purchases a book

Artificial Intelligence Tools for Cyber Attribution - Eric Nunes 2018-02-16

This SpringerBrief discusses how to develop intelligent systems for cyber attribution regarding cyber-attacks. Specifically, the authors review the multiple facets of the cyber attribution problem that make it difficult for “out-of-the-box” artificial intelligence and machine learning techniques to handle. Attributing a cyber-operation through the use of multiple pieces of technical evidence (i.e., malware reverse-engineering and source tracking) and conventional intelligence sources (i.e., human or signals intelligence) is a difficult problem not only due to the effort required to obtain evidence, but the ease with which an adversary can plant false evidence. This SpringerBrief not only lays out the theoretical foundations for how to handle the unique aspects of cyber attribution – and how to update models used for this purpose – but it also describes a series of empirical results, as well as compares results of specially-designed frameworks for cyber attribution to standard machine learning approaches. Cyber attribution is not only a challenging problem, but there are also problems in performing such research, particularly in obtaining relevant data. This SpringerBrief describes how to use capture-the-flag for such research, and describes issues from organizing such data to running your own capture-the-flag specifically designed for cyber attribution. Datasets and software are also available on the companion website.

Cloud Storage Forensics - Darren Quick 2013-12-11

This book 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 demonstrate 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.

Strategic Leadership in Digital Evidence - Paul Reedy 2020-10-08

Strategic Leadership in Digital Evidence: What Executives Need to Know provides leaders with broad knowledge and understanding of practical concepts in digital evidence, along with its impact on investigations. The book's chapters cover the differentiation of related fields, new market technologies, operating systems, social networking, and much more. This guide is written at the layperson level, although the audience is expected to have reached a level of achievement and seniority in their profession, principally law enforcement, security and intelligence. Additionally, this book will appeal to legal professionals and others in the broader justice system. Covers a broad range of challenges confronting investigators in the digital environment Addresses gaps in currently available resources and the future focus of a fast-moving field Written by a manager who has been a leader in the field of digital forensics for decades

Cybercrime Case Presentation - Brett Shavers 2013-01-15

Cybercrime Case Presentation is a "first look" excerpt from Brett Shavers' new Syngress book, Placing the Suspect Behind the Keyboard. Case presentation requires the skills of a good forensic examiner and great public speaker in order to convey enough information to an audience for the audience to place the suspect behind the keyboard. Using a variety of visual aids, demonstrative methods, and analogies, investigators can effectively create an environment where the audience fully understands complex technical information and activity in a chronological fashion, as if they observed the case as it happened.

Digital Evidence and Computer Crime - Eoghan Casey 2011-04-20

Though an increasing number of criminals are using computers and computer networks, few investigators are well versed in the issues related to digital evidence. This work explains how computer networks function and how they can be used in a crime.

Digital Forensics Processing and Procedures - David Lilburn Watson 2013-08-30

This is the first digital forensics book that covers the complete lifecycle of digital evidence and the chain of custody. This comprehensive handbook includes international procedures, best practices, compliance, and a companion web site with downloadable forms. Written by world-renowned digital forensics experts, this book is a must for any digital forensics lab. It provides anyone who handles digital evidence with a guide to proper procedure throughout the chain of custody--from incident response through analysis in the lab. A step-by-step guide to designing, building and using a digital forensics lab A comprehensive guide for all roles in a digital forensics laboratory Based on international standards and certifications

Contemporary Digital Forensic Investigations of Cloud and Mobile Applications - Kim-Kwang Raymond Choo 2016-10-12

Contemporary Digital Forensic Investigations of Cloud and Mobile Applications comprehensively discusses the implications of cloud (storage) services and mobile applications on digital forensic investigations. The book provides both digital forensic practitioners and researchers with an up-to-date and advanced knowledge of collecting and preserving electronic evidence from different types of cloud services, such as digital remnants of cloud applications accessed through mobile devices. This is the first book that covers the investigation of a wide range of cloud services. Dr. Kim-Kwang Raymond Choo and Dr. Ali Dehghantanha are leading researchers in cloud and mobile security and forensics, having organized research, led research, and been published widely in the field. Users will gain a deep overview of seminal research in the field while also identifying prospective future research topics and open challenges. Presents the most current, leading edge research on cloud and mobile application forensics, featuring a panel of top experts in the field Introduces the first book to provide an in-depth overview of the issues surrounding digital forensic investigations in cloud and associated mobile apps Covers key technical topics and provides readers with a complete understanding of the most current research findings Includes discussions on future research directions and challenges

Crime Scene Photography - Edward M. Robinson 2010-02-03

Crime Scene Photography is a book wrought from years of experience, with material carefully selected for ease of use and effectiveness in training, and field tested by the author in his role as a Forensic Services Supervisor for the Baltimore County Police Department. While there are many books on non-forensic photography, none of them adequately adapt standard image-taking to crime scene photography. The forensic photographer, or more specifically the crime scene photographer, must know how to create an acceptable image that is capable of withstanding challenges in court. This book blends the practical functions of crime scene processing with theories of photography to guide the reader in acquiring the skills, knowledge and ability to render reliable evidence. Required reading by the IAI Crime Scene Certification Board for all levels of certification Contains over 500 photographs Covers the concepts and principles of photography as well as the "how to" of creating a final product Includes end-of-chapter exercises

Confluence of AI, Machine, and Deep Learning in Cyber Forensics - Misra, Sanjay 2020-12-18

Developing a knowledge model helps to formalize the difficult task of analyzing crime incidents in addition to preserving and presenting the digital evidence for legal processing. The use of data analytics techniques to collect evidence assists forensic investigators in following the standard set of forensic procedures, techniques, and methods used for evidence collection and extraction. Varieties of data sources and information can be uniquely identified, physically isolated from the crime scene, protected, stored, and transmitted for investigation using AI techniques. With such large volumes of forensic data being processed, different deep learning techniques may be employed. Confluence of AI, Machine, and Deep Learning in Cyber Forensics contains cutting-edge research on the latest AI techniques being used to design and build solutions that address prevailing issues in cyber forensics and that will support efficient and effective investigations. This book seeks to understand the value of the deep learning algorithm to handle evidence data as well as the usage of neural networks to analyze investigation data. Other themes that are explored include machine learning algorithms that allow machines to interact with the evidence, deep learning algorithms that can handle evidence acquisition and preservation, and techniques in both fields that allow for the analysis of huge amounts of data collected during a forensic investigation. This book is ideally intended for forensics experts, forensic investigators, cyber forensic practitioners, researchers, academicians, and students interested in cyber forensics, computer science and engineering, information technology, and electronics and communication.

Security, Privacy, and Digital Forensics in the Cloud - Lei Chen 2019-02-05

In a unique and systematic way, this book discusses the security and privacy aspects of the cloud, and the relevant cloud forensics. Cloud computing is an emerging yet revolutionary technology that has been changing the way people live and work. However, with the continuous growth of cloud computing and related services, security and privacy has become a critical issue. Written by some of the top experts in the field, this book specifically discusses security and privacy of the cloud, as well as the digital forensics of cloud data, applications, and services. The first half of the book enables readers to have a comprehensive understanding and background of cloud security, which will help them through the digital investigation guidance and recommendations found in the second half of the book. Part One of Security, Privacy and Digital Forensics in the Cloud covers cloud infrastructure security; confidentiality of data; access control in cloud IaaS; cloud security and privacy management; hacking and countermeasures; risk management and disaster recovery; auditing and compliance; and security as a service (SaaS). Part Two addresses cloud forensics – model, challenges, and approaches; cyberterrorism in the cloud; digital forensic process and model in the cloud; data acquisition; digital evidence management, presentation, and court preparation; analysis of digital evidence; and forensics as a service (FaaS). Thoroughly covers both security and privacy of cloud and digital forensics Contributions by top researchers from the U.S., the European and other countries, and professionals active in the field of information and network security, digital and computer forensics, and cloud and big data Of interest to those focused upon security and implementation, and incident management Logical, well-structured, and organized to facilitate comprehension Security, Privacy and Digital Forensics in the Cloud is an ideal book for advanced undergraduate and master's-level students in information systems, information technology, computer and network forensics, as well as computer science. It can also serve as a good reference book for security professionals, digital forensics practitioners and cloud service providers.

Forensic Dental Evidence - C. Michael Bowers 2004-01-29

This handbook is written for police investigators and forensic personnel who are tasked with developing investigations that require expertise in dentistry. The focus is providing the information necessary to recognize and professionally manage dental evidence. Investigators will understand the scientific nomenclature, scientific issues and the specialized forensic nature of this type of forensic investigation. The emphasis is on human identification from dental structures, the identification of people from bite marks, and the signs and significance of dental injuries present in violent crime. Law enforcement personnel, coroners, and other death investigators often encounter crime scenes and victims that require dental expertise. Attorneys are asked to present dental evidence in court. This book delivers the backbone information for these individuals to better assess their needs in both casework and litigation. Forensic Dentistry contains numerous photographs of crime scene evidence and bite marks on victims and details for the reader the types of dental evidence and what is expected regarding collection, documentation, and the capabilities of analytical methods. This book is the first of its kind to present essential information to the field investigator in a format that allows easy reference and comprehensive detail. * Contains previously unavailable information on digital photography and dental evidence * Includes dozens of photos that illustrate the proper collection and preservation of evidence * Provides desperately needed and essential information necessary to recognize, and professionally manage dental evidence

File System Forensic Analysis - Brian Carrier 2005-03-17

The Definitive Guide to File System Analysis: Key Concepts and Hands-on Techniques Most digital evidence is stored within the computer's file system, but understanding how file systems work is one of the most technically challenging concepts for a digital investigator because there exists little documentation. Now, security expert Brian Carrier has written the definitive reference for everyone who wants to understand and be able to testify about how file system analysis is performed. Carrier begins with an overview of investigation and computer foundations and then gives an authoritative, comprehensive, and illustrated overview of contemporary volume and file systems: Crucial information for discovering hidden evidence, recovering deleted data, and validating your tools. Along the way, he describes data structures, analyzes example disk images, provides advanced investigation scenarios, and uses today's most valuable open source file system analysis tools—including tools he personally developed. Coverage includes Preserving the digital crime scene and duplicating hard disks for "dead analysis" Identifying hidden data on a disk's Host Protected Area (HPA) Reading source data: Direct versus BIOS access, dead versus live acquisition, error handling, and more Analyzing DOS, Apple, and GPT partitions; BSD disk labels; and Sun Volume Table of Contents using key concepts, data structures, and specific techniques Analyzing the contents of multiple disk volumes, such as RAID and disk spanning Analyzing FAT, NTFS, Ext2, Ext3, UFS1, and

UFS2 file systems using key concepts, data structures, and specific techniques Finding evidence: File metadata, recovery of deleted files, data hiding locations, and more Using The Sleuth Kit (TSK), Autopsy Forensic Browser, and related open source tools When it comes to file system analysis, no other book offers this much detail or expertise. Whether you're a digital forensics specialist, incident response team member, law enforcement officer, corporate security specialist, or auditor, this book will become an indispensable resource for forensic investigations, no matter what analysis tools you use.

Virtualization and Forensics - Diane Barrett 2010-08-06

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

Handbook of Digital Forensics and Investigation - Eoghan Casey 2009-10-07

Handbook of Digital Forensics and Investigation builds on the success of the Handbook of Computer Crime Investigation, bringing together renowned experts in all areas of digital forensics and investigation to provide the consummate resource for practitioners in the field. It is also designed as an accompanying text to Digital Evidence and Computer Crime. This unique collection details how to conduct digital investigations in both criminal and civil contexts, and how to locate and utilize digital evidence on computers, networks, and embedded systems. Specifically, the Investigative Methodology section of the Handbook provides expert guidance in the three main areas of practice: Forensic Analysis, Electronic Discovery, and Intrusion Investigation. The Technology section is extended and updated to reflect the state of the art in each area of specialization. The main areas of focus in the Technology section are forensic analysis of Windows, Unix, Macintosh, and embedded systems (including cellular telephones and other mobile devices), and investigations involving networks (including enterprise environments and mobile telecommunications technology). This handbook is an essential technical reference and on-the-job guide that IT professionals, forensic practitioners, law enforcement, and attorneys will rely on when confronted with computer related crime and digital evidence of any kind. *Provides methodologies proven in practice for conducting digital investigations of all kinds *Demonstrates how to locate and interpret a wide variety of digital evidence, and how it can be useful in investigations *Presents tools in the context of the investigative process, including EnCase, FTK, ProDiscover, foremost, XACT, Network Miner, Splunk, flow-tools, and many other specialized utilities and analysis platforms *Case examples in every chapter give readers a practical understanding of the technical, logistical, and legal challenges that arise in real investigations

Encyclopedia of Forensic Sciences - Jay A.

Siegel 2013

Understanding Forensic Digital Imaging - Herbert L. Blitzer 2010-07-26
Understanding Forensic Digital Imaging offers the principles of forensic digital imaging and photography in a manner that is straightforward and easy to digest for the professional and student. It provides information on how to photograph any setting that may have forensic value, details how to follow practices that are acceptable in court, and recommends what variety of hardware and software are most valuable to a practitioner. In addition to chapters on basic topics such as light and lenses, resolution, and file formats, the book contains forensic-science-specific information on SWGIT and the use of photography in investigations and in court. Of particular note is Chapter 17, Establishing Quality Requirements, which offers information on how to create a good digital image, and is more comprehensive than any other source currently available. Covers topics that are of vital importance to the practicing professional Serves as an up-to-date reference in the rapidly evolving world of digital imaging Uses clear and concise language so that any reader can understand the technology and science behind digital imaging

Digital Triage Forensics - Stephen Pearson 2010-07-13
Digital Triage Forensics: Processing the Digital Crime Scene provides the tools, training, and techniques in Digital Triage Forensics (DTF), a procedural model for the investigation of digital crime scenes including both traditional crime scenes and the more complex battlefield crime scenes. The DTF is used by the U.S. Army and other traditional police agencies for current digital forensic applications. The tools, training, and techniques from this practice are being brought to the public in this book for the first time. Now corporations, law enforcement, and consultants can benefit from the unique perspectives of the experts who coined Digital Triage Forensics. The text covers the collection of digital media and data from cellular devices and SIM cards. It also presents outlines of pre- and post- blast investigations. This book is divided into six chapters that present an overview of the age of warfare, key concepts of digital triage and battlefield forensics, and methods of conducting pre/post-blast investigations. The first chapter considers how improvised explosive devices (IEDs) have changed from basic booby traps to the primary attack method of the insurgents in Iraq and Afghanistan. It also covers the emergence of a sustainable vehicle for prosecuting enemy combatants under the Rule of Law in Iraq as U.S. airmen, marines, sailors, and soldiers perform roles outside their normal military duties and responsibilities. The remaining chapters detail the benefits of DTF model, the roles and responsibilities of the weapons intelligence team (WIT), and the challenges and issues of collecting digital media in battlefield situations. Moreover, data collection and processing as well as debates on the changing role of digital forensics investigators are explored. This book will be helpful to forensic scientists, investigators, and military personnel, as well as to students and beginners in forensics. Includes coverage on collecting digital media Outlines pre- and post-blast investigations Features content on collecting data from cellular devices and SIM cards

Handbook of Computer Crime Investigation - Eoghan Casey 2001-10-22
Following on the success of his introductory text, Digital Evidence and Computer Crime, Eoghan Casey brings together a few top experts to create the first detailed guide for professionals who are already familiar with digital evidence. The Handbook of Computer Crime Investigation helps readers master the forensic analysis of computer systems with a three-part approach covering tools, technology, and case studies. The Tools section provides the details on leading software programs, with each chapter written by that product's creator. The section ends with an objective comparison of the strengths and limitations of each tool. The main Technology section provides the technical "how to" information for collecting and analyzing digital evidence in common situations, starting with computers, moving on to networks, and culminating with embedded systems. The Case Examples section gives readers a sense of the technical, legal, and practical challenges that arise in real computer investigations. The Tools section provides details of leading hardware and

software The main Technology section provides the technical "how to" information for collecting and analysing digital evidence in common situations Case Examples give readers a sense of the technical, legal, and practical challenges that arise in real computer investigations

Ethics in Forensic Science - J.C. Upshaw Downs 2012-03-26

The word "ethical" can be defined as proper conduct. A failure of forensic scientists to act ethically can result in serious adverse outcomes. However, while seemingly simple to define, the application of being "ethical" is somewhat more obscure. That is, when is ethical, ethical, and when is it not? Because we have an adversarial legal system, differences of opinion exist in forensic science. However, there are instances when differences are so divergent that an individual's ethics are called into question. In light of not only the O.J. Simpson trial - the first national trial to question the ethical behavior of forensic scientists - and the National Academy of Science critique of forensic science, ethical issues have come to the forefront of concern within the forensic community. Ethics in Forensic Science draws upon the expertise of the editors and numerous contributors in order to present several different perspectives with the goal of better understanding when ethical lines are crossed. In order to achieve this goal, comparisons of various canons of ethics from medicine, law, science, religion, and politics will be examined and applied. Lastly, case studies will be presented to illustrate ethical dilemmas and provide a real-world context for readers. Edited by a well known forensic attorney/consultant and a leading medical examiner, Ethics in Forensic Science addresses the concerns of the entire forensic community - the laboratory, medical examiner, and crime scene investigator. It will be an invaluable reference for practitioners in forensic and/or criminal justice programs, crime scene investigators/photographers, law enforcement training centers, police academies and local agencies, as well as forensic consultants and forensic scientists.

Implementing Digital Forensic Readiness - Jason Sachowski 2019-05-29

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 redusing 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.

Big Data Analytics and Computing for Digital Forensic Investigations - Suneeta Satpathy 2020-03-17

Digital forensics has recently gained a notable development and become the most demanding area in today's information security requirement. This book investigates the areas of digital forensics, digital investigation and data analysis procedures as they apply to computer fraud and cybercrime, with the main objective of describing a variety of digital crimes and retrieving potential digital evidence. Big Data Analytics and Computing for Digital Forensic Investigations gives a contemporary view on the problems of information security. It presents the idea that protective mechanisms and software must be integrated along with forensic capabilities into existing forensic software using big data computing tools and techniques. Features Describes trends of digital forensics served for big data and the challenges of evidence acquisition Enables digital forensic investigators and law enforcement agencies to enhance their digital investigation capabilities with the application of data science analytics, algorithms and fusion technique This book is focused on helping professionals as well as researchers to get ready with next-generation security systems to mount the rising challenges of computer fraud and cybercrimes as well as with digital forensic investigations. Dr Suneeta Satpathy has more than ten years of teaching experience in different subjects of the Computer Science and Engineering discipline. She is currently working as an associate professor in the Department of Computer Science and Engineering, College of Bhubaneswar, affiliated with Biju Patnaik University and Technology, Odisha. Her research interests include computer forensics, cybersecurity, data fusion, data mining, big data analysis and decision mining. Dr Sachi Nandan Mohanty is an associate professor in the Department of Computer Science and Engineering at ICFAI Tech, ICFAI Foundation for Higher Education, Hyderabad, India. His research interests include data mining, big data analysis, cognitive science, fuzzy decision-making, brain–computer interface, cognition and computational intelligence.

Malware Detection - Mihai Christodorescu 2007-03-06

This book captures the state of the art research in the area of malicious code detection, prevention and mitigation. It contains cutting-edge behavior-based techniques to analyze and detect obfuscated malware. The book analyzes current trends in malware activity online, including botnets and malicious code for profit, and it proposes effective models for detection and prevention of attacks using. Furthermore, the book introduces novel techniques for creating services that protect their own integrity and safety, plus the data they manage.

X-Ways Forensics Practitioner’s Guide - Brett Shavers 2013-08-10

The X-Ways Forensics Practitioner's Guide is more than a manual-it's a complete reference guide to the full use of one of the most powerful forensic applications available, software that is used by a wide array of law enforcement agencies and private forensic examiners on a daily basis. In the X-Ways Forensics Practitioner's Guide, the authors provide you with complete coverage of this powerful tool, walking you through configuration and X-Ways fundamentals, and then moving through case flow, creating and importing hash databases, digging into OS artifacts, and conducting searches. With X-Ways Forensics Practitioner's Guide, you will be able to use X-Ways Forensics to its fullest potential without any additional training. The book takes you from installation to the most advanced features of the software. Once you are familiar with the basic components of X-Ways, the authors demonstrate never-before-documented features using real life examples and information on how to present investigation results. The book culminates with chapters on reporting, triage and preview methods, as well as electronic discovery and cool X-Ways apps. Provides detailed explanations of the complete forensic investigation processe using X-Ways Forensics. Goes beyond the basics: hands-on case demonstrations of never-before-documented features of X-Ways. Provides the best resource of hands-on information to use X-Ways Forensics.

Windows Registry Forensics - Harlan Carvey 2011-01-03

Windows Registry Forensics provides the background of the Windows Registry to help develop an understanding of the binary structure of Registry hive files. Approaches to live response and analysis are included, and tools and techniques for postmortem analysis are discussed at length. Tools and techniques are presented that take the student and analyst beyond the current use of viewers and into real analysis of data contained in the Registry, demonstrating the forensic value of the Registry. Named a 2011 Best Digital Forensics Book by InfoSec Reviews, this book is packed with real-world examples using freely available open source tools. It also includes case studies and a CD containing code and author-created tools discussed in the book. This book will appeal to computer forensic and incident response professionals, including federal government and commercial/private sector contractors, consultants, etc. Named a 2011 Best Digital Forensics Book by InfoSec Reviews Packed with real-world examples using freely available open source tools Deep explanation and understanding of the Windows Registry – the most difficult part of Windows to analyze forensically Includes a CD containing code and author-created tools discussed in the book

Virtualization and Forensics - Diane Barrett
2010

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