Android Malware And Analysis

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Learning Android Forensics - Rohit Tamma 2015-04-30
If you are a forensic analyst or an information security professional wanting to develop your knowledge of Android forensics, then this is the book for you. Some basic knowledge of the Android mobile platform is expected.
Android Security - Anmol Misra 2016-04-19
Android Security: Attacks and Defenses is for anyone interested in learning about the strengths and weaknesses of the Android platform from a security perspective. Starting with an introduction to Android OS architecture and application programming, it will help readers get up to speed on the basics of the Android platform and its security issues.E
Countering Cyber Attacks and Preserving the Integrity and Availability of Critical

Systems - Geetha, S. 2019-02-22
The rate of cybercrimes is increasing because of the fast-paced advancements in computer and internet technology. Crimes employing mobile devices, data embedding/mining systems, computers, network communications, or any malware impose a huge threat to data security. Countering Cyber Attacks and Preserving the Integrity and Availability of Critical Systems addresses current problems and issues emerging in cyber forensics and investigations and proposes new solutions that can be adopted and implemented to counter security breaches within various organizations. The publication examines a variety of topics such as advanced techniques for forensic developments in computer and communication-link environments and legal perspectives including procedures for cyber investigations, standards, and policies. It is designed for policymakers, forensic analysts, technology developers, security administrators, academicians, researchers, and students.

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.
Protecting Mobile Networks and Devices - Weizhi Meng 2016-11-25
This book gathers and analyzes the latest attacks, solutions, and trends in mobile networks. Its broad scope covers attacks and solutions related to mobile networks, mobile phone security, and wireless security. It examines the previous and emerging attacks and

solutions in the mobile networking worlds, as well as other pertinent security issues. The many attack samples present the severity of this problem, while the delivered methodologies and countermeasures show how to build a truly secure mobile computing environment.

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.

Malware Analysis and Detection Engineering - Abhijit Mohanta 2020-11-05
Discover how the internals of malware work and how you can analyze and detect it. You will learn not only how to analyze and reverse malware, but also how to classify and categorize it, giving you insight into the intent of the malware. Malware Analysis and Detection Engineering is a one-stop guide to malware analysis that simplifies the topic by teaching you undocumented tricks used by analysts in the industry. You will be able to extend your expertise to analyze and reverse the challenges

that malicious software throws at you. The book starts with an introduction to malware analysis and reverse engineering to provide insight on the different types of malware and also the terminology used in the anti-malware industry. You will know how to set up an isolated lab environment to safely execute and analyze malware. You will learn about malware packing, code injection, and process hollowing plus how to analyze, reverse, classify, and categorize malware using static and dynamic tools. You will be able to automate your malware analysis process by exploring detection tools to modify and trace malware programs, including sandboxes, IDS/IPS, anti-virus, and Windows binary instrumentation. The book provides comprehensive content in combination with hands-on exercises to help you dig into the details of malware dissection, giving you the confidence to tackle malware that enters your environment. What You Will Learn Analyze, dissect, reverse engineer, and classify malware Effectively handle malware with custom packers and compilers Unpack complex malware to locate vital malware components and decipher their intent Use various static and dynamic malware analysis tools Leverage the internals of various detection engineering tools to improve your workflow Write Snort rules and learn to use them with Suricata IDS Who This Book Is For Security professionals, malware analysts, SOC analysts, incident responders, detection engineers, reverse engineers, and network security engineers "This book is a beast! If you're looking to master the ever-widening field of malware analysis, look no further. This is the definitive guide for you." Pedram Amini, CTO Inquest; Founder OpenRCE.org and ZeroDayInitiative

Innovative Security Solutions for Information Technology and Communications - Jean-Louis Lanet 2019-02-05

This book constitutes the thoroughly refereed proceedings of the 11th International

Conference on Security for Information Technology and Communications, SecITC 2018, held in Bucharest, Romania, in November 2018. The 35 revised full papers presented together with 3 invited talks were carefully reviewed and selected from 70 submissions. The papers present advances in the theory, design, implementation, analysis, verification, or evaluation of secure systems and algorithms.

Learn Ethical Hacking from Scratch - Zaid Sabih 2018-07-31

Learn how to hack systems like black hat hackers and secure them like security experts Key Features Understand how computer systems work and their vulnerabilities Exploit weaknesses and hack into machines to test their security Learn how to secure systems from hackers Book Description This book starts with the basics of ethical hacking, how to practice hacking safely and legally, and how to install and interact with Kali Linux and the Linux terminal. You will explore network hacking, where you will see how to test the security of wired and wireless networks. You'll also learn how to crack the password for any Wi-Fi network (whether it uses WEP, WPA, or WPA2) and spy on the connected devices. Moving on, you will discover how to gain access to remote computer systems using client-side and server-side attacks. You will also get the hang of post-exploitation techniques, including remotely controlling and interacting with the systems that you compromised. Towards the end of the book, you will be able to pick up web application hacking techniques. You'll see how to discover, exploit, and prevent a number of website vulnerabilities, such as XSS and SQL injections. The attacks covered are practical techniques that work against real systems and are purely for educational purposes. At the end of each section, you will learn how to detect, prevent, and secure systems from these attacks. What you will learn Understand ethical hacking and the different fields and types of hackers Set up a penetration

testing lab to practice safe and legal hacking Explore Linux basics, commands, and how to interact with the terminal Access password-protected networks and spy on connected clients Use server and client-side attacks to hack and control remote computers Control a hacked system remotely and use it to hack other systems Discover, exploit, and prevent a number of web application vulnerabilities such as XSS and SQL injections Who this book is for Learning Ethical Hacking from Scratch is for anyone interested in learning how to hack and test the security of systems like professional hackers and security experts.

Smartphones from an Applied Research Perspective - Nawaz Mohamudally 2017-11-02
Smartphones from an Applied Research Perspective highlights latest advancements of research undertaken in multidisciplinary fields where the smartphone plays a central role. Smartphone is synonymous to innovation in today's society. Very few visionaries predicted its social, cultural, technological and economic impacts, although the usage of smartphone is almost pervasive and transcendental. This book is meant for researchers and postgraduate students looking forward for hot topics for their final year projects, doctoral or even postdoctoral studies. Practitioners too will find food for thought and will surely be amazed by the broadness of the topics presented.

Proceedings of the 22nd ACM SIGSOFT International Symposium on Foundations of Software Engineering - Shing-Chi Cheung 2014

Malware Analysis Techniques - Dylan Barker 2021-06-18
Analyze malicious samples, write reports, and use industry-standard methodologies to confidently triage and analyze adversarial software and malware Key FeaturesInvestigate, detect, and respond to various types of malware threatUnderstand how to use what you've

learned as an analyst to produce actionable IOCs and reportingExplore complete solutions, detailed walkthroughs, and case studies of real-world malware samplesBook Description Malicious software poses a threat to every enterprise globally. Its growth is costing businesses millions of dollars due to currency theft as a result of ransomware and lost productivity. With this book, you'll learn how to quickly triage, identify, attribute, and remediate threats using proven analysis techniques. Malware Analysis Techniques begins with an overview of the nature of malware, the current threat landscape, and its impact on businesses. Once you've covered the basics of malware, you'll move on to discover more about the technical nature of malicious software, including static characteristics and dynamic attack methods within the MITRE ATT&CK framework. You'll also find out how to perform practical malware analysis by applying all that you've learned to attribute the malware to a specific threat and weaponize the adversary's indicators of compromise (IOCs) and methodology against them to prevent them from attacking. Finally, you'll get to grips with common tooling utilized by professional malware analysts and understand the basics of reverse engineering with the NSA's Ghidra platform. By the end of this malware analysis book, you'll be able to perform in-depth static and dynamic analysis and automate key tasks for improved defense against attacks. What you will learnDiscover how to maintain a safe analysis environment for malware samplesGet to grips with static and dynamic analysis techniques for collecting IOCsReverse-engineer and debug malware to understand its purposeDevelop a well-polished workflow for malware analysisUnderstand when and where to implement automation to react quickly to threatsPerform malware analysis tasks such as code analysis and API inspectionWho this book is for This book is for incident response professionals, malware

analysts, and researchers who want to sharpen their skillset or are looking for a reference for common static and dynamic analysis techniques. Beginners will also find this book useful to get started with learning about malware analysis. Basic knowledge of command-line interfaces, familiarity with Windows and Unix-like filesystems and registries, and experience in scripting languages such as PowerShell, Python, or Ruby will assist with understanding the concepts covered.

Android Hacker's Handbook - Joshua J. Drake 2014-03-26

The first comprehensive guide to discovering and preventingattacks on the Android OS As the Android operating system continues to increase its shareof the smartphone market, smartphone hacking remains a growingthreat. Written by experts who rank among the world's foremostAndroid security researchers, this book presents vulnerabilitydiscovery, analysis, and exploitation tools for the good guys.Following a detailed explanation of how the Android OS works andits overall security architecture, the authors examine howvulnerabilities can be discovered and exploits developed forvarious system components, preparing you to defend againstthem. If you are a mobile device administrator, security researcher,Android app developer, or consultant responsible for evaluatingAndroid security, you will find this guide is essential to yourtoolbox. A crack team of leading Android security researchers explainAndroid security risks, security design and architecture, rooting,fuzz testing, and vulnerability analysis Covers Android application building blocks and security as wellas debugging and auditing Android apps Prepares mobile device administrators, security researchers,Android app developers, and security consultants to defend Androidsystems against attack Android Hacker's Handbook is the first comprehensiveresource for IT professionals charged with smartphonesecurity.

Android Malware and Analysis - Ken Dunham 2014-10-24

The rapid growth and development of Android-based devices has resulted in a wealth of sensitive information on mobile devices that offer minimal malware protection. This has created an immediate need for security professionals that understand how to best approach the subject of Android malware threats and analysis. In Android Malware and Analysis, Ken Dunham, renowned global malware expert and author, teams up with international experts to document the best tools and tactics available for analyzing Android malware. The book covers both methods of malware analysis: dynamic and static. This tactical and practical book shows you how to use to use dynamic malware analysis to check the behavior of an application/malware as it has been executed in the system. It also describes how you can apply static analysis to break apart the application/malware using reverse engineering tools and techniques to recreate the actual code and algorithms used. The book presents the insights of experts in the field, who have already sized up the best tools, tactics, and procedures for recognizing and analyzing Android malware threats quickly and effectively. You also get access to an online library of tools that supplies what you will need to begin your own analysis of Android malware threats. Tools available on the book's site include updated information, tutorials, code, scripts, and author assistance. This is not a book on Android OS, fuzz testing, or social engineering. Instead, it is about the best ways to analyze and tear apart Android malware threats. After reading the book, you will be able to immediately implement the tools and tactics covered to identify and analyze the latest evolution of Android threats. Updated information, tutorials, a private forum, code, scripts, tools, and author assistance are available at AndroidRisk.com for first-time owners of the book.

Security in Computer and Information Sciences - Erol Gelenbe 2018-07-13

This open access book constitutes the thoroughly refereed proceedings of the First International ISCIS Security Workshop 2018, Euro-CYBERSEC 2018, held in London, UK, in February 2018. The 12 full papers presented together with an overview paper were carefully reviewed and selected from 31 submissions. Security of distributed interconnected systems, software systems, and the Internet of Things has become a crucial aspect of the performance of computer systems. The papers deal with these issues, with a specific focus on societally critical systems such as health informatics systems, the Internet of Things, energy systems, digital cities, digital economy, mobile networks, and the underlying physical and network infrastructures.

Practical Mobile Forensics - Satish Bommisetty 2014-07-21

The book is an easy-to-follow guide with clear instructions on various mobile forensic techniques. The chapters and the topics within are structured for a smooth learning curve, which will swiftly empower you to master mobile forensics. If you are a budding forensic analyst, consultant, engineer, or a forensic professional wanting to expand your skillset, this is the book for you. The book will also be beneficial to those with an interest in mobile forensics or wanting to find data lost on mobile devices. It will be helpful to be familiar with forensics in general but no prior experience is required to follow this book.

Mastering Malware Analysis - Alexey Kleymenov 2022-09-30

Learn effective malware analysis tactics to prevent your systems from getting infected Key Features Investigate cyberattacks and prevent malware-related incidents from occurring in the future Learn core concepts of static and dynamic malware analysis, memory forensics, decryption, and much more Get practical guidance in developing efficient solutions to handle malware

incidents Book Description New and developing technologies inevitably bring new types of malware with them, creating a huge demand for IT professionals that can keep malware at bay. With the help of this updated second edition of Mastering Malware Analysis, you'll be able to add valuable reverse-engineering skills to your CV and learn how to protect organizations in the most efficient way. This book will familiarize you with multiple universal patterns behind different malicious software types and teach you how to analyze them using a variety of approaches. You'll learn how to examine malware code and determine the damage it can possibly cause to systems, along with ensuring that the right prevention or remediation steps are followed. As you cover all aspects of malware analysis for Windows, Linux, macOS, and mobile platforms in detail, you'll also get to grips with obfuscation, anti-debugging, and other advanced anti-reverse-engineering techniques. The skills you acquire in this cybersecurity book will help you deal with all types of modern malware, strengthen your defenses, and prevent or promptly mitigate breaches regardless of the platforms involved. By the end of this book, you will have learned how to efficiently analyze samples, investigate suspicious activity, and build innovative solutions to handle malware incidents. What you will learn Explore assembly languages to strengthen your reverse-engineering skills Master various file formats and relevant APIs used by attackers Discover attack vectors and start handling IT, OT, and IoT malware Understand how to analyze samples for x86 and various RISC architectures Perform static and dynamic analysis of files of various types Get to grips with handling sophisticated malware cases Understand real advanced attacks, covering all their stages Focus on how to bypass anti-reverse-engineering techniques Who this book is for If you are a malware researcher, forensic analyst, IT security administrator, or anyone looking to secure

against malicious software or investigate malicious code, this book is for you. This new edition is suited to all levels of knowledge, including complete beginners. Any prior exposure to programming or cybersecurity will further help to speed up your learning process.

Android Security Internals - Nikolay Elenkov 2014-10-14

There are more than one billion Android devices in use today, each one a potential target. Unfortunately, many fundamental Android security features have been little more than a black box to all but the most elite security professionals—until now. In Android Security Internals, top Android security expert Nikolay Elenkov takes us under the hood of the Android security system. Elenkov describes Android security architecture from the bottom up, delving into the implementation of major security-related components and subsystems, like Binder IPC, permissions, cryptographic providers, and device administration. You'll learn: –How Android permissions are declared, used, and enforced –How Android manages application packages and employs code signing to verify their authenticity –How Android implements the Java Cryptography Architecture (JCA) and Java Secure Socket Extension (JSSE) frameworks –About Android's credential storage system and APIs, which let applications store cryptographic keys securely –About the online account management framework and how Google accounts integrate with Android –About the implementation of verified boot, disk encryption, lockscreen, and other device security features –How Android's bootloader and recovery OS are used to perform full system updates, and how to obtain root access With its unprecedented level of depth and detail, Android Security Internals is a must-have for any security-minded Android developer.

Malware Analysis Using Artificial Intelligence and Deep Learning - Mark Stamp 2020-12-20

This book is focused on the use of deep learning (DL) and artificial intelligence (AI) as tools to advance the fields of malware detection and analysis. The individual chapters of the book deal with a wide variety of state-of-the-art AI and DL techniques, which are applied to a number of challenging malware-related problems. DL and AI based approaches to malware detection and analysis are largely data driven and hence minimal expert domain knowledge of malware is needed. This book fills a gap between the emerging fields of DL/AI and malware analysis. It covers a broad range of modern and practical DL and AI techniques, including frameworks and development tools enabling the audience to innovate with cutting-edge research advancements in a multitude of malware (and closely related) use cases.

Computer Networks and Inventive Communication Technologies - S. Smys 2021-06-02

This book is a collection of peer-reviewed best selected research papers presented at 3rd International Conference on Computer Networks and Inventive Communication Technologies (ICCNCT 2020). The book covers new results in theory, methodology, and applications of computer networks and data communications. It includes original papers on computer networks, network protocols and wireless networks, data communication technologies, and network security. The proceedings of this conference is a valuable resource, dealing with both the important core and the specialized issues in the areas of next generation wireless network design, control, and management, as well as in the areas of protection, assurance, and trust in information security practice. It is a reference for researchers, instructors, students, scientists, engineers, managers, and industry practitioners for advance work in the area.

Detection of Intrusions and Malware, and Vulnerability Assessment - Michalis Polychronakis 2017-06-27

This book constitutes the refereed proceedings of the 14th International Conference on Detection of Intrusions and Malware, and Vulnerability Assessment, DIMVA 2017, held in Bonn, Germany, in July 2017. The 18 revised full papers included in this book were carefully reviewed and selected from 67 submissions. They present topics such as enclaves and isolation; malware analysis; cyber-physical systems; detection and protection; code analysis; and web security.

Research Anthology on Securing Mobile Technologies and Applications - Management Association, Information Resources 2021-02-05 Mobile technologies have become a staple in society for their accessibility and diverse range of applications that are continually growing and advancing. Users are increasingly using these devices for activities beyond simple communication including gaming and e-commerce and to access confidential information including banking accounts and medical records. While mobile devices are being so widely used and accepted in daily life, and subsequently housing more and more personal data, it is evident that the security of these devices is paramount. As mobile applications now create easy access to personal information, they can incorporate location tracking services, and data collection can happen discreetly behind the scenes. Hence, there needs to be more security and privacy measures enacted to ensure that mobile technologies can be used safely. Advancements in trust and privacy, defensive strategies, and steps for securing the device are important foci as mobile technologies are highly popular and rapidly developing. The Research Anthology on Securing Mobile Technologies and Applications discusses the strategies, methods, and technologies being employed for security amongst mobile devices and applications. This comprehensive book explores the security support that needs to be required on mobile devices to avoid application damage, hacking,

security breaches and attacks, or unauthorized accesses to personal data. The chapters cover the latest technologies that are being used such as cryptography, verification systems, security policies and contracts, and general network security procedures along with a look into cybercrime and forensics. This book is essential for software engineers, app developers, computer scientists, security and IT professionals, practitioners, stakeholders, researchers, academicians, and students interested in how mobile technologies and applications are implementing security protocols and tactics amongst devices.

Android Malware and Analysis - Ken Dunham 2014-10-24

The rapid growth and development of Android-based devices has resulted in a wealth of sensitive information on mobile devices that offer minimal malware protection. This has created an immediate need for security professionals that understand how to best approach the subject of Android malware threats and analysis.In Android Malware and Analysis, K

Advances in Intelligent Systems and Applications - Volume 2 - Jeng-Shyang Pan 2012-12-15

The field of Intelligent Systems and Applications has expanded enormously during the last two decades. Theoretical and practical results in this area are growing rapidly due to many successful applications and new theories derived from many diverse problems. This book is dedicated to the Intelligent Systems and Applications in many different aspects. In particular, this book is to provide highlights of the current research in Intelligent Systems and Applications. It consists of research papers in the following specific topics: l Authentication, Identification, and Signature l Intrusion Detection l Steganography, Data Hiding, and Watermarking l Database, System, and Communication Security l Computer Vision, Object Tracking, and Pattern Recognition l Image Processing, Medical

Image Processing, and Video Coding l Digital Content, Digital Life, and Human Computer Interaction l Parallel, Peer-to-peer, Distributed, and Cloud Computing l Software Engineering and Programming Language This book provides a reference to theoretical problems as well as practical solutions and applications for the state-of-the-art results in Intelligent Systems and Applications on the aforementioned topics. In particular, both the academic community (graduate students, post-doctors and faculties) in Electrical Engineering, Computer Science, and Applied Mathematics; and the industrial community (engineers, engineering managers, programmers, research lab staffs and managers, security managers) will find this book interesting.

2021 International Conference on Data Mining Workshops (ICDMW) - IEEE Staff 2021-12-07

The conference covers all aspects of data mining, including algorithms, software, systems, and applications

Learning Android Forensics - Oleg Skulkin 2018-12-26

A comprehensive guide to Android forensics, from setting up the workstation to analyzing key artifacts Key Features Get up and running with modern mobile forensic strategies and techniques Analyze the most popular Android applications using free and open source forensic tools Learn malware detection and analysis techniques to investigate mobile cybersecurity incidents Book Description Many forensic examiners rely on commercial, push-button tools to retrieve and analyze data, even though there is no tool that does either of these jobs perfectly. Learning Android Forensics will introduce you to the most up-to-date Android platform and its architecture, and provide a high-level overview of what Android forensics entails. You will understand how data is stored on Android devices and how to set up a digital forensic examination environment. As you make your way

through the chapters, you will work through various physical and logical techniques to extract data from devices in order to obtain forensic evidence. You will also learn how to recover deleted data and forensically analyze application data with the help of various open source and commercial tools. In the concluding chapters, you will explore malware analysis so that you'll be able to investigate cybersecurity incidents involving Android malware. By the end of this book, you will have a complete understanding of the Android forensic process, you will have explored open source and commercial forensic tools, and will have basic skills of Android malware identification and analysis. What you will learn Understand Android OS and architecture Set up a forensics environment for Android analysis Perform logical and physical data extractions Learn to recover deleted data Explore how to analyze application data Identify malware on Android devices Analyze Android malware Who this book is for If you are a forensic analyst or an information security professional wanting to develop your knowledge of Android forensics, then this is the book for you. Some basic knowledge of the Android mobile platform is expected.

Android Malware Detection using Machine Learning - ElMouatez Billah Karbab 2021-07-10 The authors develop a malware fingerprinting framework to cover accurate android malware detection and family attribution in this book. The authors emphasize the following: (1) the scalability over a large malware corpus; (2) the resiliency to common obfuscation techniques; (3) the portability over different platforms and architectures. First, the authors propose an approximate fingerprinting technique for android packaging that captures the underlying static structure of the android applications in the context of bulk and offline detection at the app-market level. This book proposes a malware clustering framework to perform malware

clustering by building and partitioning the similarity network of malicious applications on top of this fingerprinting technique. Second, the authors propose an approximate fingerprinting technique that leverages dynamic analysis and natural language processing techniques to generate Android malware behavior reports. Based on this fingerprinting technique, the authors propose a portable malware detection framework employing machine learning classification. Third, the authors design an automatic framework to produce intelligence about the underlying malicious cyber-infrastructures of Android malware. The authors then leverage graph analysis techniques to generate relevant intelligence to identify the threat effects of malicious Internet activity associated with android malware. The authors elaborate on an effective android malware detection system, in the online detection context at the mobile device level. It is suitable for deployment on mobile devices, using machine learning classification on method call sequences. Also, it is resilient to common code obfuscation techniques and adaptive to operating systems and malware change overtime, using natural language processing and deep learning techniques. Researchers working in mobile and network security, machine learning and pattern recognition will find this book useful as a reference. Advanced-level students studying computer science within these topic areas will purchase this book as well.

An Analysis of Android Malware Detection Using Tree Learning Techniques - Kyler D. Dickey 2022

Android malware is a growing threat, coinciding with the increasing adoption of the Android platform. Malware detection methods used to maintain user privacy and system integrity are increasingly becoming the subject of research. Many new methods studied employ learning algorithms to detect malicious programs. This study investigates the use of byte and opcode

frequency features as inputs for tree-based machine learning methods. The algorithm is optimized to reduce overfitting given input hyperparameter combinations and is tuned using cross-validation procedures. Lastly, the study deliberates on possible avenues for future research to gather more concrete evidence for the efficacy and cost-effectiveness of such a system in a productive environment, emphasizing the need for more strenuous testing processes.

Learning Malware Analysis - Monnappa K A 2018-06-29

Understand malware analysis and its practical implementation Key Features Explore the key concepts of malware analysis and memory forensics using real-world examples Learn the art of detecting, analyzing, and investigating malware threats Understand adversary tactics and techniques Book Description Malware analysis and memory forensics are powerful analysis and investigation techniques used in reverse engineering, digital forensics, and incident response. With adversaries becoming sophisticated and carrying out advanced malware attacks on critical infrastructures, data centers, and private and public organizations, detecting, responding to, and investigating such intrusions is critical to information security professionals. Malware analysis and memory forensics have become must-have skills to fight advanced malware, targeted attacks, and security breaches. This book teaches you the concepts, techniques, and tools to understand the behavior and characteristics of malware through malware analysis. It also teaches you techniques to investigate and hunt malware using memory forensics. This book introduces you to the basics of malware analysis, and then gradually progresses into the more advanced concepts of code analysis and memory forensics. It uses real-world malware samples, infected memory images, and visual diagrams to help you gain a better understanding of the subject and to

equip you with the skills required to analyze, investigate, and respond to malware-related incidents. What you will learn Create a safe and isolated lab environment for malware analysis Extract the metadata associated with malware Determine malware's interaction with the system Perform code analysis using IDA Pro and x64dbg Reverse-engineer various malware functionalities Reverse engineer and decode common encoding/encryption algorithms Reverse-engineer malware code injection and hooking techniques Investigate and hunt malware using memory forensics Who this book is for This book is for incident responders, cyber-security investigators, system administrators, malware analyst, forensic practitioners, student, or curious security professionals interested in learning malware analysis and memory forensics. Knowledge of programming languages such as C and Python is helpful but is not mandatory. If you have written few lines of code and have a basic understanding of programming concepts, you'll be able to get most out of this book.

Learning Android Forensics - Oleg Skulkin 2018-12-28

A comprehensive guide to Android forensics, from setting up the workstation to analyzing key artifacts Key FeaturesGet up and running with modern mobile forensic strategies and techniquesAnalyze the most popular Android applications using free and open source forensic toolsLearn malware detection and analysis techniques to investigate mobile cybersecurity incidentsBook Description Many forensic examiners rely on commercial, push-button tools to retrieve and analyze data, even though there is no tool that does either of these jobs perfectly. Learning Android Forensics will introduce you to the most up-to-date Android platform and its architecture, and provide a high-level overview of what Android forensics entails. You will understand how data is stored on Android devices and how to set up a digital forensic

examination environment. As you make your way through the chapters, you will work through various physical and logical techniques to extract data from devices in order to obtain forensic evidence. You will also learn how to recover deleted data and forensically analyze application data with the help of various open source and commercial tools. In the concluding chapters, you will explore malware analysis so that you'll be able to investigate cybersecurity incidents involving Android malware. By the end of this book, you will have a complete understanding of the Android forensic process, you will have explored open source and commercial forensic tools, and will have basic skills of Android malware identification and analysis. What you will learnUnderstand Android OS and architectureSet up a forensics environment for Android analysisPerform logical and physical data extractionsLearn to recover deleted dataExplore how to analyze application dataIdentify malware on Android devicesAnalyze Android malwareWho this book is for If you are a forensic analyst or an information security professional wanting to develop your knowledge of Android forensics, then this is the book for you. Some basic knowledge of the Android mobile platform is expected.

Cyber Security - M. U. Bokhari 2018-04-27
This book comprises select proceedings of the annual convention of the Computer Society of India. Divided into 10 topical volumes, the proceedings present papers on state-of-the-art research, surveys, and succinct reviews. The volume covers diverse topics ranging from information security to cryptography and from encryption to intrusion detection. This book focuses on Cyber Security. It aims at informing the readers about the technology in general and the internet in particular. The book uncovers the various nuances of information security, cyber security and its various dimensions. This book also covers latest security trends, ways to combat cyber threats including the detection

and mitigation of security threats and risks. The contents of this book will prove useful to professionals and researchers alike.

Hacking Android - Srinivasa Rao Kotipalli 2016-07-28

Explore every nook and cranny of the Android OS to modify your device and guard it against security threats About This Book Understand and counteract against offensive security threats to your applications Maximize your device's power and potential to suit your needs and curiosity See exactly how your smartphone's OS is put together (and where the seams are) Who This Book Is For This book is for anyone who wants to learn about Android security. Software developers, QA professionals, and beginner- to intermediate-level security professionals will find this book helpful. Basic knowledge of Android programming would be a plus. What You Will Learn Acquaint yourself with the fundamental building blocks of Android Apps in the right way Pentest Android apps and perform various attacks in the real world using real case studies Take a look at how your personal data can be stolen by malicious attackers Understand the offensive maneuvers that hackers use Discover how to defend against threats Get to know the basic concepts of Android rooting See how developers make mistakes that allow attackers to steal data from phones Grasp ways to secure your Android apps and devices Find out how remote attacks are possible on Android devices In Detail With the mass explosion of Android mobile phones in the world, mobile devices have become an integral part of our everyday lives. Security of Android devices is a broad subject that should be part of our everyday lives to defend against ever-growing smartphone attacks. Everyone, starting with end users all the way up to developers and security professionals should care about android security. Hacking Android is a step-by-step guide that will get you started with Android security. You'll begin your journey at the absolute basics,

and then will slowly gear up to the concepts of Android rooting, application security assessments, malware, infecting APK files, and fuzzing. On this journey you'll get to grips with various tools and techniques that can be used in your everyday pentests. You'll gain the skills necessary to perform Android application vulnerability assessment and penetration testing and will create an Android pentesting lab. Style and approach This comprehensive guide takes a step-by-step approach and is explained in a conversational and easy-to-follow style. Each topic is explained sequentially in the process of performing a successful penetration test. We also include detailed explanations as well as screenshots of the basic and advanced concepts.

Computer Security -- ESORICS 2012 - Sara Foresti 2012-08-19

This book constitutes the refereed proceedings of the 17th European Symposium on Computer Security, ESORICS 2012, held in Pisa, Italy, in September 2012. The 50 papers included in the book were carefully reviewed and selected from 248 papers. The articles are organized in topical sections on security and data protection in real systems; formal models for cryptography and access control; security and privacy in mobile and wireless networks; counteracting man-in-the-middle attacks; network security; users privacy and anonymity; location privacy; voting protocols and anonymous communication; private computation in cloud systems; formal security models; identity based encryption and group signature; authentication; encryption key and password security; malware and phishing; and software security.

Android Malware - Xuxian Jiang 2013-06-13

Mobile devices, such as smart phones, have achieved computing and networking capabilities comparable to traditional personal computers. Their successful consumerization has also become a source of pain for adopting users and organizations. In particular, the widespread presence of information-stealing applications

and other types of mobile malware raises substantial security and privacy concerns. Android Malware presents a systematic view on state-of-the-art mobile malware that targets the popular Android mobile platform. Covering key topics like the Android malware history, malware behavior and classification, as well as, possible defense techniques.

Mastering Malware Analysis - Alexey Kleymenov 2019-06-06

Master malware analysis to protect your systems from getting infected Key FeaturesSet up and model solutions, investigate malware, and prevent it from occurring in futureLearn core concepts of dynamic malware analysis, memory forensics, decryption, and much moreA practical guide to developing innovative solutions to numerous malware incidentsBook Description With the ever-growing proliferation of technology, the risk of encountering malicious code or malware has also increased. Malware analysis has become one of the most trending topics in businesses in recent years due to multiple prominent ransomware attacks. Mastering Malware Analysis explains the universal patterns behind different malicious software types and how to analyze them using a variety of approaches. You will learn how to examine malware code and determine the damage it can possibly cause to your systems to ensure that it won't propagate any further. Moving forward, you will cover all aspects of malware analysis for the Windows platform in detail. Next, you will get to grips with obfuscation and anti-disassembly, anti-debugging, as well as anti-virtual machine techniques. This book will help you deal with modern cross-platform malware. Throughout the course of this book, you will explore real-world examples of static and dynamic malware analysis, unpacking and decrypting, and rootkit detection. Finally, this book will help you strengthen your defenses and prevent malware breaches for IoT devices and mobile platforms.

By the end of this book, you will have learned to effectively analyze, investigate, and build innovative solutions to handle any malware incidents. What you will learnExplore widely used assembly languages to strengthen your reverse-engineering skillsMaster different executable file formats, programming languages, and relevant APIs used by attackersPerform static and dynamic analysis for multiple platforms and file typesGet to grips with handling sophisticated malware casesUnderstand real advanced attacks, covering all stages from infiltration to hacking the systemLearn to bypass anti-reverse engineering techniquesWho this book is for If you are an IT security administrator, forensic analyst, or malware researcher looking to secure against malicious software or investigate malicious code, this book is for you. Prior programming experience and a fair understanding of malware attacks and investigation is expected.

Android Malware Detection Using Static Analysis, Machine Learning and Deep Learning - Fawad Ahmad 2022

Advances in Big Data and Cloud Computing - Elijah Blessing Rajsingh 2018-04-06

This book is a compendium of the proceedings of the International Conference on Big-Data and Cloud Computing. It includes recent advances in the areas of big data analytics, cloud computing, the Internet of nano things, cloud security, data analytics in the cloud, smart cities and grids, etc. Primarily focusing on the application of knowledge that promotes ideas for solving the problems of the society through cutting-edge technologies, it provides novel ideas that further world-class research and development. This concise compilation of articles approved by a panel of expert reviewers is an invaluable resource for researchers in the area of advanced engineering sciences.

The Ghidra Book - Chris Eagle 2020-09-08

A guide to using the Ghidra software reverse engineering tool suite. The result of more than a decade of research and development within the NSA, the Ghidra platform was developed to address some of the agency's most challenging reverse-engineering problems. With the open-source release of this formerly restricted tool suite, one of the world's most capable disassemblers and intuitive decompilers is now in the hands of cybersecurity defenders everywhere -- and The Ghidra Book is the one and only guide you need to master it. In addition to discussing RE techniques useful in analyzing software and malware of all kinds, the book thoroughly introduces Ghidra's components, features, and unique capacity for group collaboration. You'll learn how to: • Navigate a disassembly • Use Ghidra's built-in decompiler to expedite analysis • Analyze obfuscated binaries • Extend Ghidra to recognize new data types • Build new Ghidra analyzers and loaders • Add support for new processors and instruction sets • Script Ghidra tasks to automate workflows • Set up and use a collaborative reverse engineering environment Designed for beginner and advanced users alike, The Ghidra Book will effectively prepare you to meet the needs and challenges of RE, so you can analyze files like a pro.

Mobile Konami Codes - Naval Postgraduate Naval Postgraduate School 2016-01-04
Society's pervasive use of mobile technologies has provided an incentive for the amount and kinds of mobile malware to steadily increase since 2004. Challenges in static analysis of mobile malware have stimulated the need for emulated, dynamic analysis techniques. Unfortunately, emulating mobile devices is nontrivial because of the different types of hardware features onboard (e.g., sensors) and the manner in which users interact with their devices as compared to traditional computing platforms. To test this, our research focuses on the enumeration and comparison of static

attributes and event values from sensors and dynamic resources on Android runtime environments, both from physical devices and online analysis services. Utilizing our results from enumeration, we develop two different Android applications that are successful in detecting and evading the emulated environments utilized by those mobile analysis services during execution. When ran on physical devices, the same applications successfully perform a pseudo-malware action and send device identifying information to our server for logging.

Computer Network Security - Igor Kotenko 2012-10-10

This book constitutes the refereed proceedings of the 6th International Conference on Mathematical Methods, Models, and Architectures for Computer Network Security, MMM-ACNS 2012, held in St. Petersburg, Russia in October 2012. The 14 revised full papers and 8 revised short presentations were carefully reviewed and selected from a total of 44 submissions. The papers are organized in topical sections on applied cryptography and security protocols, access control and information protection, security policies, security event and information management, instrusion prevention, detection and response, anti-malware techniques, security modeling and cloud security.