Practical Reverse Engineering X86 X64 Arm Windows Kernel Reversing Tools And Obfuscation Bruce Dang

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Modern Computer Architecture and Organization Jim Ledin 2022-05-04 A no-nonsense, practical guide to current and future processor and computer architectures that enables you to design computer systems and develop better software applications across a variety of domains Key Features • Understand digital circuitry through the study of transistors, logic gates, and sequential logic • Learn the architecture of x86, x64, ARM, and RISC-V processors, iPhones, and high-performance gaming PCs • Study the design principles underlying the domains of cybersecurity, bitcoin, and self-driving cars Book Description Are you a software developer, systems designer, or computer architecture student looking for a methodical introduction to digital device architectures, but are overwhelmed by the complexity of modern systems? This step-by-step guide will teach you how modern computer systems work with the help of practical examples and exercises. You'll gain insights into the internal behavior of processors down to the circuit level and will understand how the hardware executes code developed in high-level languages. This book will teach you the fundamentals of computer systems including transistors, logic gates, sequential logic, and instruction pipelines. You will learn details of modern processor architectures and instruction sets including x86, x64, ARM, and RISC-V. You will see how to implement a RISC-V processor in a low-cost FPGA board and write a quantum computing program and run it on an actual quantum computer. This edition has been updated to cover the architecture and design principles underlying the important domains of cybersecurity, blockchain and bitcoin mining, and self-driving vehicles. By the end of this book, you will have a thorough understanding of modern processors and computer architecture and the future directions these technologies are likely to take. What you will learn • Understand the fundamentals of transistor technology and digital circuits • Explore the concepts underlying pipelining and superscalar processing • Implement a complete RISC-V processor in a low-cost FPGA • Understand the technology used to implement virtual machines • Learn about security-critical computing applications like financial transaction processing • Get up to speed with blockchain and the hardware architectures used in bitcoin mining • Explore the capabilities of self-navigating vehicle computing architectures • Write a quantum computing program and run it on a real quantum computer Who this book is for This book is for software developers, computer engineering students, system designers, reverse engineers, and anyone looking to understand the architecture and design principles underlying modern computer systems: ranging from tiny, embedded devices to warehouse-size cloud server farms. A general understanding of computer processors is helpful but not required.

Основы кибербезопасности. Стандарты, концепции, методы и средства обеспечения Анатолий Белоус 2021-03-30 Эта книга фактически представляет собой научно-практическую энциклопедию по современной кибербезопасности. Здесь анализируются предпосылки, история, методы и особенности киберпреступности, кибертерроризма, киберразведки и киберконтрразведки, этапы развития кибероружия, теория и практика его применения, технологическая платформа кибероружия (вирусы, программные и аппаратные трояны), методы защиты (антивирусные программы, проактивная антивирусная защита, кибериммунные операционные системы). Впервые в мировой научно-технической литературе приведены результаты системного авторского анализа всех известных уязвимостей в современных системах киберзащиты – в программном обеспечении, криптографических алгоритмах, криптографическом оборудовании, в микросхемах, мобильных телефонах, в бортовом электронном оборудовании автомобилей, самолетов и даже дронов. Здесь также представлены основные концепции, национальные стандарты и методы обеспечения кибербезопасности критических инфраструктур США, Англии, Нидерландов, Канады, а также основные международные стандарты. Фактически в объеме одной книги содержатся материалы трех разных книг, ориентированных как на начинающих пользователей, специалистов среднего уровня, так и специалистов по кибербезопасности высокой компетенции, которые тоже найдут здесь для себя много полезной информации.Знания, которые вы получите из этой книги, помогут вам повысить безопасность работы в Интернете, безопасность офисных и домашних устройств, изучить и применять в практической деятельности наиболее эффективные и опробованные на практике политики безопасности.

Управление финансовыми рисками 2-е изд., испр. и доп. Учебник и практикум для вузов Олеся Южакова 2022-05-13 В курсе представлены классические и современные концепции управления финансовыми рисками, методы анализа, оценки, процедуры, модели и технологии финансового риск-менеджмента. Раскрыты особенности управления корпоративными финансовыми рисками в компаниях реального сектора экономики, банковских учреждениях, страховых организациях, профессиональных участниках рынка ценных бумаг, негосударственных пенсионных и паевых инвестиционных фондах, а также суверенными финансовыми рисками. Каждая тема курса содержит практикум, включающий вопросы, задачи, задания для самостоятельной работы. Соответствует актуальным требованиям Федерального государственного образовательного стандарта высшего образования. Курс будет полезен студентам бакалавриата и магистратуры экономических образовательных программ университетов, аспирантам экономических научных специальностей, преподавателям вузов и колледжей, специалистам-практикам в области риск-менеджмента.

Practical Malware Analysis Michael Sikorski 2012-02-01 Malware analysis is big business, and attacks can cost a company dearly. When malware breaches your defenses, you need to act quickly to cure current infections and prevent future ones from occurring. For those who want to stay ahead of the latest malware, Practical Malware Analysis will teach you the tools and techniques used by professional analysts. With this book as your guide, you'll be able to safely analyze, debug, and disassemble any malicious software that comes your way. You'll learn how to: –Set up a safe virtual environment to analyze malware –Quickly extract network signatures and host-based indicators –Use key analysis tools like IDA Pro, OllyDbg, and WinDbg –Overcome malware tricks like obfuscation, anti-disassembly, anti-debugging, and anti-virtual machine techniques –Use your newfound knowledge of Windows internals for malware analysis –Develop a methodology for unpacking malware and get practical experience with five of the most popular packers –Analyze special cases of malware with shellcode, C++, and 64-bit code Hands-on labs throughout the book challenge you to practice and synthesize your skills as you dissect real malware samples, and pages of detailed dissections offer an over-the-shoulder look at how the pros do it. You'll learn how to crack open malware to see how it really works, determine what damage it has done, thoroughly clean your network, and ensure that the malware never comes back. Malware analysis is a cat-and-mouse game with rules that are constantly changing, so make sure you have the fundamentals. Whether you're tasked with securing one network or a thousand networks, or you're making a living as a malware analyst, you'll find what you need to succeed in Practical Malware Analysis.

Mastering Reverse Engineering Ajay Kumar Tiwari 2016-02-08 Reverse engineering is the process of analyzing hardware or software and understanding it, without having access to the source code or design documents. Hackers are able to reverse engineer systems and exploit what they find with scary results. Now the good guys can use the same tools to thwart these threats. Practical Reverse Engineering goes under the hood of reverse engineering for security analysts, security engineers, and system programmers, so they can learn how to use these same processes to stop hackers in their tracks. The book covers x86, x64, and ARM (the first book to cover all three); Windows kernel-mode code rootkits and drivers; virtual machine protection techniques; and much more. Best of all, it offers a systematic approach to the material, with plenty of hands-on exercises and real-world examples.

Cyber-Security Threats, Actors, and Dynamic Mitigation Nicholas Kolokotronis 2021-04-05 Cyber-Security Threats, Actors, and Dynamic Mitigation provides both a technical and state-of-the-art perspective as well as a systematic overview of the recent advances in different facets of cyber-security. It covers the methodologies for modeling attack strategies used by threat actors targeting devices, systems, and networks such as smart homes, critical infrastructures, and industrial IoT. With a comprehensive review of the threat landscape, the book explores both common and sophisticated threats to systems and networks. Tools and methodologies are presented for precise modeling of attack strategies, which can be used both proactively in risk management and reactively in intrusion prevention and response systems. Several contemporary techniques are offered ranging from reconnaissance and penetration testing to malware detection, analysis, and mitigation. Advanced machine learning-based approaches are also included in the area of anomaly-based detection, that are capable of detecting attacks relying on zero-day vulnerabilities and exploits. Academics, researchers, and professionals in cyber-security who want an in-depth look at the contemporary aspects of the field will find this book of interest. Those wanting a unique reference for various cyber-security threats and how they are detected, analyzed, and mitigated will reach for this book often.

Quick Guide Game Hacking, Blockchain und Monetarisierung Lutz Anderie 2020-03-25 Künstliche Intelligenz, Digitalisierung und Algorithmen Diese Themen verändern unsere Gesellschaft. Game Hacking, die Blockchain und Monetarisierung durch KI Systeme sind integraler Bestandteil der Computerspiele Branche, die mit ihrem Ökosystem seit Jahrzehnten Wachstum generiert und von hoher gesellschaftlicher und wirtschaftlicher Bedeutung ist. Dieser Quick Guide zeigt auf, wie Game Hacking und die damit einhergehende Entwicklung, Distribution und Vermarktung von Cheat Software funktioniert, einer Form der digitalen Produkt Piraterie und des Cybercrime. Auch die Blockchain, die nach dem Bitcoin-Hype ihr wahres Potenzial als Peer-to-Peer Distributed Ledger Technology entfaltet und mit welcher nicht nur Blockchain-Games entwickelt werden, ist verständlich erläutert und dokumentiert. Die Funktion und mögliche Bedeutung von In-Game Items als Crypto Currencies, Crypto Assets und Tokens wird hinterfragt Künstliche Intelligenz, Bestandteil einer jeden Game Engine, erfährt durch neue Monetarisierungsmodelle wie Cloud Gaming, Lootboxen und Steam Early Access neue Dimensionen, die in diesem Quick Guide verständlich erläutert sind. Finden Sie hier die wichtigsten inhaltlichen Punkte: Künstliche Intelligenz und Monetarisierung verstehen Cloud Gaming, Lootboxen und Steam Early Access erfolgreich managen In-Game Items, Crypto Assets und Tokenization wertsteigernd steuern Blockchain und Peer-to-Peer Distributed Ledger Technology anwenden Game Hacking, Cheat Software und Cybercrime abwehren Machine Learning, neuronale Netze und Cyberconsciousness sowie deren Bedeutung für die Computerspiele Branche, werden aggregiert dargelegt, die jüngsten und zukünftigen Entwicklungen aufgezeigt. Alle Themengebiete werden konsequent aus der betriebswirtschaftlichen oder Managementperspektive dargelegt und bilden einen hohen Praxisbezug. Drei Experten- Interviews vertiefen die juristischen, technologischen und betriebswirtschaftlichen Dimensionen.

Tribe of Hackers Security Leaders Marcus J. Carey 2020-03-31 Tribal Knowledge from the Best in Cybersecurity Leadership The Tribe of Hackers series continues, sharing what CISSPs, CISOs, and other security leaders need to know to build solid cybersecurity teams and keep organizations secure. Dozens of experts and influential security specialists reveal their best strategies for building, leading, and managing information security within organizations. Tribe of Hackers Security Leaders follows the same bestselling format as the original Tribe of Hackers, but with a detailed focus on how information security leaders impact organizational security. Information security is becoming more important and more valuable all the time. Security breaches can be costly, even shutting businessesand governments down, so security leadership is a high-stakes game. Leading teams of hackers is not always easy, but the future of your organization may depend on it. In this book, the world’s top security experts answer the questions that Chief Information Security Officers and other security leaders are asking, including: What’s the most important decision you’ve made or action you’ve taken to enable a business risk? How do you lead your team to execute and get results? Do you have a workforce philosophy or unique approach to talent acquisition? Have you created a cohesive strategy for your information security program or business unit? Anyone in or aspiring to an information security leadership role, whether at a team level or organization-wide, needs to read this book. Tribe of Hackers Security Leaders has the real-world advice and practical guidance you need to advance your cybersecurity leadership career.

Hacking Jon Mark Erickson 2004

Practical Foundations of ARM64 Linux Debugging, Disassembling, Reversing Dmitry Vostokov 2022-01-11 This training course is a Linux ARM64 (A64) version of the previous Practical Foundations of Linux Debugging, Disassembly, Reversing book. It also complements Accelerated Linux Core Dump Analysis training course. The book skeleton is the same as its x64 Linux predecessor, but the content was revised entirely because of a different Linux distribution and CPU architecture. The course is useful for: - Software support and escalation engineers, cloud security engineers, SRE, and DevSecOps; - Software engineers coming from JVM background; - Software testers; - Engineers coming from non-Linux environments, for example, Windows or Mac OS X; - Engineers coming from non-ARM environments, for example, x86/x64; - Linux C/C++ software engineers without assembly language background; - Security researchers without assembly language background; - Beginners learning Linux software reverse engineering techniques. This book can also be used as an ARM64 assembly language and Linux debugging supplement for relevant undergraduate-level courses.

Hands-On Penetration Testing on Windows Phil Bramwell 2018-07-30 Master the art of identifying vulnerabilities within the Windows OS and develop the desired solutions for it using Kali Linux. Key Features Identify the vulnerabilities in your system using Kali Linux 2018.02 Discover the art of exploiting Windows kernel drivers Get to know several bypassing techniques to gain control of your Windows environment Book Description Windows has always been the go-to platform for users around the globe to perform administration and ad hoc tasks, in settings that range from small offices to global enterprises, and this massive footprint makes securing Windows a unique challenge. This book will enable you to distinguish yourself to your clients. In this book, you'll learn advanced techniques to attack Windows environments from the indispensable toolkit that is Kali Linux. We'll work through core network hacking concepts and advanced Windows exploitation techniques, such as stack and heap overflows, precision heap spraying, and kernel exploitation, using coding principles that allow you to leverage powerful Python scripts and shellcode. We'll wrap up with post-exploitation strategies that enable you to go deeper and keep your access. Finally, we'll introduce kernel hacking fundamentals and fuzzing testing, so you can discover vulnerabilities and write custom exploits. By the end of this book, you'll be well-versed in identifying vulnerabilities within the Windows OS and developing the desired solutions for them. What you will learn Get to know advanced pen testing techniques with Kali Linux Gain an understanding of Kali Linux tools and methods from behind the scenes See how to use Kali Linux at an advanced level Understand the exploitation of Windows kernel drivers Understand advanced Windows concepts and protections, and how to bypass them using Kali Linux Discover Windows exploitation techniques, such as stack and heap overflows and kernel exploitation, through coding principles Who this book is for This book is for penetration testers, ethical hackers, and individuals breaking into the pentesting role after demonstrating an advanced skill in boot camps. Prior experience with Windows exploitation, Kali Linux, and some Windows debugging tools is necessary

Introduction to Cyberdeception Neil C. Rowe 2016-09-23 This book is an introduction to both offensive and defensive techniques of cyberdeception. Unlike most books on cyberdeception, this book focuses on methods rather than detection. It treats cyberdeception techniques that are current, novel, and practical, and that go well beyond traditional honeypots. It contains features friendly for classroom use: (1) minimal use of programming details and mathematics, (2) modular chapters that can be covered in many orders, (3) exercises with each chapter, and (4) an extensive reference list.Cyberattacks have grown serious enough that understanding and using deception is essential to safe operation in cyberspace. The deception techniques covered are impersonation, delays, fakes, camouflage, false excuses, and social engineering. Special attention is devoted to cyberdeception in industrial control systems and within operating systems. This material is supported by a detailed discussion of how to plan deceptions and calculate their detectability and effectiveness. Some of the chapters provide further technical details of specific deception techniques and their application. Cyberdeception can be conducted ethically and efficiently when necessary by following a few basic principles. This book is intended for advanced undergraduate students and graduate students, as well as computer professionals learning on their own. It will be especially useful for anyone who helps run important and essential computer systems such as critical-infrastructure and military systems.

Die unsichtbare Hand des Staates Nils Grosche 2020-10-27

Modern Computer Architecture and Organization Jim Ledin 2020-04-30 A no-nonsense, practical guide to current and future processor and computer architectures, enabling you to design computer systems and develop better software applications across a variety of domains Key FeaturesUnderstand digital circuitry with the help of transistors, logic gates, and sequential logicExamine the architecture and instruction sets of x86, x64, ARM, and RISC-V processorsExplore the architecture of modern devices such as the iPhone X and high-performance gaming PCsBook Description Are you a software developer, systems designer, or computer architecture student looking for a methodical introduction to digital device architectures but overwhelmed by their complexity? This book will help you to learn how modern computer systems work, from the lowest level of transistor switching to the macro view of collaborating multiprocessor servers. You'll gain unique insights into the internal behavior of processors that execute the code developed in high-level languages and enable you to design more efficient and scalable software systems. The book will teach you the fundamentals of computer systems including transistors, logic gates, sequential logic, and instruction operations. You will learn details of modern processor architectures and instruction sets including x86, x64, ARM, and RISC-V. You will see how to implement a RISC-V processor in a low-cost FPGA board and how to write a quantum computing program and run it on an actual quantum computer. By the end of this book, you will have a thorough understanding of modern processor and computer architectures and the future directions these architectures are likely to take. What you will learnGet to grips with transistor technology and digital circuit principlesDiscover the functional elements of computer processorsUnderstand pipelining and superscalar executionWork with floating-point data formatsUnderstand the purpose and operation of the supervisor modeImplement a complete RISC-V processor in a low-cost FPGAExplore the techniques used in virtual machine implementationWrite a quantum computing program and run it on a quantum computerWho this book is for This book is for software developers, computer engineering students, system designers, reverse engineers, and anyone looking to understand the architecture and design principles underlying modern computer systems from tiny embedded devices to warehouse-size cloud server farms. A general understanding of computer processors is helpful but not required.

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.

Practical Reverse Engineering Bruce Dang 2014-02-03 Analyzing how hacks are done, so as to stop them in thefuture Reverse engineering is the process of analyzing hardware orsoftware and understanding it, without having access to the sourcecode or design documents. Hackers are able to reverse engineersystems and exploit what they find with scary results. Now the goodguys can use the same tools to thwart these threats. PracticalReverse Engineering goes under the hood of reverse engineeringfor security analysts, security engineers, and system programmers,so they can learn how to use these same processes to stop hackersin their tracks. The book covers x86, x64, and ARM (the first book to cover allthree); Windows kernel-mode code rootkits and drivers; virtualmachine protection techniques; and much more. Best of all, itoffers a systematic approach to the material, with plenty ofhands-on exercises and real-world examples. Offers a systematic approach to understanding reverseengineering, with hands-on exercises and real-world examples Covers x86, x64, and advanced RISC machine (ARM) architecturesas well as deobfuscation and virtual machine protectiontechniques Provides special coverage of Windows kernel-mode code(rootkits/drivers), a topic not often covered elsewhere, andexplains how to analyze drivers step by step Demystifies topics that have a steep learning curve Includes a bonus chapter on reverse engineering tools Practical Reverse Engineering: Using x86, x64, ARM, WindowsKernel, and Reversing Tools provides crucial, up-to-dateguidance for a broad range of IT professionals.