

Attacking Network Protocols No Starch Press

Provides step-by-step instructions on basic hacking techniques and reverse engineering skills along with information on Xbox security, hardware, and software.

This text introduces the spirit and theory of hacking as well as the science behind it all; it also provides some core techniques and tricks of hacking so you can think like a hacker, write your own hacks or thwart potential system attacks.

Penetration testers simulate cyber attacks to find security weaknesses in networks, operating systems, and applications. Information security experts worldwide use penetration techniques to evaluate enterprise defenses. In *Penetration Testing*, security expert, researcher, and trainer Georgia Weidman introduces you to the core skills and techniques that every pentester needs. Using a virtual machine-based lab that includes Kali Linux and vulnerable operating systems, you'll run through a series of practical lessons with tools like Wireshark, Nmap, and Burp Suite. As you follow along with the labs and launch attacks, you'll experience the key stages of an actual assessment—including information gathering, finding exploitable vulnerabilities, gaining access to systems, post exploitation, and more. Learn how to: –Crack passwords and wireless network keys with brute-forcing and wordlists –Test web applications for vulnerabilities –Use the Metasploit Framework to launch exploits and write your own Metasploit modules –Automate social-engineering attacks –Bypass antivirus software –Turn access to one machine into total control of the enterprise in the post exploitation phase You'll even explore writing your own exploits. Then it's on to mobile hacking—Weidman's particular area of research—with her tool, the Smartphone Pentest Framework. With its collection of hands-on lessons that cover key tools and strategies, *Penetration Testing* is the introduction that every aspiring hacker needs.

Like Sun Tzu's *Art of War for Modern Business*, this book uses ancient ninja scrolls as the foundation for teaching readers about cyber-warfare, espionage and security. *Cyberjutsu* is a practical cybersecurity field guide based on the techniques, tactics, and procedures of the ancient ninja. Cyber warfare specialist Ben McCarty's analysis of declassified Japanese scrolls will show how you can apply ninja methods to combat today's security challenges like information warfare, deceptive infiltration, espionage, and zero-day attacks. Learn how to use key ninja techniques to find gaps in a target's defense, strike where the enemy is negligent, master the art of invisibility, and more. McCarty outlines specific, in-depth security mitigations such as fending off social engineering attacks by being present with "the correct mind," mapping your network like an adversary to prevent breaches, and leveraging ninja-like traps to protect your systems. You'll also learn how to: • Use threat modeling to reveal network vulnerabilities • Identify insider threats in your organization • Deploy countermeasures like network sensors, time-based controls, air gaps, and authentication protocols • Guard against malware command and-control servers • Detect attackers, prevent supply-chain attacks, and counter zero-day exploits *Cyberjutsu* is the playbook that every modern cybersecurity professional needs to channel their inner ninja. Turn to the old ways to combat the latest cyber threats and stay one step ahead of your adversaries.

Addressing the firewall capabilities of Linux, a handbook for security professionals describes the Netfilter infrastructure in the Linux kernel and explains how to use Netfilter as an intrusion detection system by integrating it with custom open source software and Snort rulesets, discussin such topics as Linux firewall log analysis and policies, passive network authentication and authorization, and more. Original. (Intermediate)

Rootkits and Bootkits will teach you how to understand and counter sophisticated, advanced threats buried deep in a machine's boot process or UEFI firmware. With the aid of numerous case studies and professional research from three of the world's leading security experts, you'll trace malware development over time from rootkits like TDL3 to present-day UEFI implants and examine how they infect a system, persist through reboot, and evade security software. As you inspect and dissect real malware, you'll learn: • How Windows boots—including 32-bit, 64-bit, and UEFI mode—and where to find vulnerabilities • The details of boot process security mechanisms like Secure Boot, including an overview of Virtual Secure Mode (VSM) and Device Guard • Reverse engineering and forensic techniques for analyzing real malware, including bootkits like Rovnix/Carberp, Gapz, TDL4, and the infamous rootkits TDL3 and Festi • How to perform static and dynamic analysis using emulation and tools like Bochs and IDA Pro • How to better understand the delivery stage of threats against BIOS and UEFI firmware in order to create detection capabilities • How to use virtualization tools like VMware Workstation to reverse engineer bootkits and the Intel Chipsec tool to dig into forensic analysis Cybercrime syndicates and malicious actors will continue to write ever more persistent and covert attacks, but the game is not lost. Explore the cutting edge of malware analysis with *Rootkits and Bootkits*. Covers boot processes for Windows 32-bit and 64-bit operating systems.

This highly anticipated print collection gathers articles published in the much-loved *International Journal of Proof-of-Concept or Get The Fuck Out. PoC||GTFO* follows in the tradition of *Phrack* and *Uninformed* by publishing on the subjects of offensive security research, reverse engineering, and file format internals. Until now, the journal has only been available online or printed and distributed for free at hacker conferences worldwide. Consistent with the journal's quirky, biblical style, this book comes with all the trimmings: a leatherette cover, ribbon bookmark, bible paper, and gilt-edged pages. The book features more than 80 technical essays from numerous famous hackers, authors of classics like "Reliable Code Execution on a Tamagotchi," "ELFs are Dorky, Elves are Cool," "Burning a Phone," "Forget Not the Humble Timing Attack," and "A Sermon on Hacker Privilege." Twenty-four full-color pages by Ange Albertini illustrate many of the clever tricks described in the text.

Network security is not simply about building impenetrable walls—determined attackers will eventually overcome traditional defenses. The most effective computer security strategies integrate network security monitoring (NSM): the collection and analysis of data to help you detect and respond to intrusions. In *The Practice of Network Security Monitoring*, Mandiant CSO Richard Bejtlich shows you how to use NSM to add a robust layer of protection around your networks—no prior experience required. To help you avoid costly and inflexible solutions, he teaches you how to deploy, build, and run an NSM operation using open source software and vendor-neutral tools. You'll learn how to: –Determine where to deploy NSM platforms, and size them for the monitored networks –Deploy stand-alone or distributed NSM installations –Use command line and graphical packet analysis tools, and NSM consoles –Interpret network evidence from server-side and client-side intrusions –Integrate threat intelligence into NSM software to identify sophisticated adversaries There's no foolproof way to keep attackers out of your network. But when

they get in, you'll be prepared. The Practice of Network Security Monitoring will show you how to build a security net to detect, contain, and control them. Attacks are inevitable, but losing sensitive data shouldn't be.

An indispensable collection of practical tips and real-world advice for tackling common Python problems and taking your code to the next level. Features interviews with high-profile Python developers who share their tips, tricks, best practices, and real-world advice gleaned from years of experience. Sharpen your Python skills as you dive deep into the Python programming language with Serious Python. You'll cover a range of advanced topics like multithreading and memorization, get advice from experts on things like designing APIs and dealing with databases, and learn Python internals to help you gain a deeper understanding of the language itself. Written for developers and experienced programmers, Serious Python brings together over 15 years of Python experience to teach you how to avoid common mistakes, write code more efficiently, and build better programs in less time. As you make your way through the book's extensive tutorials, you'll learn how to start a project and tackle topics like versioning, layouts, coding style, and automated checks. You'll learn how to package your software for distribution, optimize performance, use the right data structures, define functions efficiently, pick the right libraries, build future-proof programs, and optimize your programs down to the bytecode. You'll also learn how to: - Make and use effective decorators and methods, including abstract, static, and class methods - Employ Python for functional programming using generators, pure functions, and functional functions - Extend flake8 to work with the abstract syntax tree (AST) to introduce more sophisticated automatic checks into your programs - Apply dynamic performance analysis to identify bottlenecks in your code - Work with relational databases and effectively manage and stream data with PostgreSQL If you've been looking for a way to take your Python skills from good to great, Serious Python will help you get there. Learn from the experts and get seriously good at Python with Serious Python!

Describes the techniques of computer hacking, covering such topics as stack-based overflows, format string exploits, and shellcode.

This practical, tutorial-style book uses the Kali Linux distribution to teach Linux basics with a focus on how hackers would use them. Topics include Linux command line basics, filesystems, networking, BASH basics, package management, logging, and the Linux kernel and drivers. If you're getting started along the exciting path of hacking, cybersecurity, and pentesting, Linux Basics for Hackers is an excellent first step. Using Kali Linux, an advanced penetration testing distribution of Linux, you'll learn the basics of using the Linux operating system and acquire the tools and techniques you'll need to take control of a Linux environment. First, you'll learn how to install Kali on a virtual machine and get an introduction to basic Linux concepts. Next, you'll tackle broader Linux topics like manipulating text, controlling file and directory permissions, and managing user environment variables. You'll then focus in on foundational hacking concepts like security and anonymity and learn scripting skills with bash and Python. Practical tutorials and exercises throughout will reinforce and test your skills as you learn how to: - Cover your tracks by changing your network information and manipulating the rsyslog logging utility - Write a tool to scan for network connections, and connect and listen to wireless networks - Keep your internet activity stealthy using Tor, proxy servers, VPNs, and encrypted email - Write a bash script to scan open ports for potential targets - Use and abuse services like MySQL, Apache web server, and OpenSSH - Build your own hacking tools, such as a remote video spy camera and a password cracker Hacking is complex, and there is no single way in. Why not start at the beginning with Linux Basics for Hackers?

Attacking Network Protocols A Hacker's Guide to Capture, Analysis, and Exploitation No Starch Press

Attacking Network Protocols is a deep dive into network protocol security from James Forshaw, one of the world's leading bug hunters. This comprehensive guide looks at networking from an attacker's perspective to help you discover, exploit, and ultimately protect vulnerabilities. You'll start with a rundown of networking basics and protocol traffic capture before moving on to static and dynamic protocol analysis, common protocol structures, cryptography, and protocol security. Then you'll turn your focus to finding and exploiting vulnerabilities, with an overview of common bug classes, fuzzing, debugging, and exhaustion attacks. Learn how to: - Capture, manipulate, and replay packets - Develop tools to dissect traffic and reverse engineer code to understand the inner workings of a network protocol - Discover and exploit vulnerabilities such as memory corruptions, authentication bypasses, and denials of service - Use capture and analysis tools like Wireshark and develop your own custom network proxies to manipulate network traffic Attacking Network Protocols is a must-have for any penetration tester, bug hunter, or developer looking to understand and discover network vulnerabilities.

Stop manually analyzing binary! Practical Binary Analysis is the first book of its kind to present advanced binary analysis topics, such as binary instrumentation, dynamic taint analysis, and symbolic execution, in an accessible way. As malware increasingly obfuscates itself and applies anti-analysis techniques to thwart our analysis, we need more sophisticated methods that allow us to raise that dark curtain designed to keep us out--binary analysis can help. The goal of all binary analysis is to determine (and possibly modify) the true properties of binary programs to understand what they really do, rather than what we think they should do. While reverse engineering and disassembly are critical first steps in many forms of binary analysis, there is much more to be learned. This hands-on guide teaches you how to tackle the fascinating but challenging topics of binary analysis and instrumentation and helps you become proficient in an area typically only mastered by a small group of expert hackers. It will take you from basic concepts to state-of-the-art methods as you dig into topics like code injection, disassembly, dynamic taint analysis, and binary instrumentation. Written for security engineers, hackers, and those with a basic working knowledge of C/C++ and x86-64, Practical Binary Analysis will teach you in-depth how binary programs work and help you acquire the tools and techniques needed to gain more control and insight into binary programs. Once you've completed an introduction to basic binary formats, you'll learn how to analyze binaries using techniques like the GNU/Linux binary analysis toolchain, disassembly, and code injection. You'll then go on to implement profiling tools with Pin and learn how to build your own

dynamic taint analysis tools with libdft and symbolic execution tools using Triton. You'll learn how to: - Parse ELF and PE binaries and build a binary loader with libbfd - Use data-flow analysis techniques like program tracing, slicing, and reaching definitions analysis to reason about runtime flow of your programs - Modify ELF binaries with techniques like parasitic code injection and hex editing - Build custom disassembly tools with Capstone - Use binary instrumentation to circumvent anti-analysis tricks commonly used by malware - Apply taint analysis to detect control hijacking and data leak attacks - Use symbolic execution to build automatic exploitation tools With exercises at the end of each chapter to help solidify your skills, you'll go from understanding basic assembly to performing some of the most sophisticated binary analysis and instrumentation. Practical Binary Analysis gives you what you need to work effectively with binary programs and transform your knowledge from basic understanding to expert-level proficiency.

Uses real-world bug reports (vulnerabilities in software or in this case web applications) to teach programmers and InfoSec professionals how to discover and protect vulnerabilities in web applications. Real-World Bug Hunting is a field guide to finding software bugs. Ethical hacker Peter Yaworski breaks down common types of bugs, then contextualizes them with real bug bounty reports released by hackers on companies like Twitter, Facebook, Google, Uber, and Starbucks. As you read each report, you'll gain deeper insight into how the vulnerabilities work and how you might find similar ones. Each chapter begins with an explanation of a vulnerability type, then moves into a series of real bug bounty reports that show how the bugs were found. You'll learn things like how Cross-Site Request Forgery tricks users into unknowingly submitting information to websites they are logged into; how to pass along unsafe JavaScript to execute Cross-Site Scripting; how to access another user's data via Insecure Direct Object References; how to trick websites into disclosing information with Server Side Request Forgeries; and how bugs in application logic can lead to pretty serious vulnerabilities. Yaworski also shares advice on how to write effective vulnerability reports and develop relationships with bug bounty programs, as well as recommends hacking tools that can make the job a little easier.

Provides information on building networks with PF, covering such topics as creating a wireless access point, using tables and proactive defense against spammers, and setting up queries and traffic shaping with ALTQ.

Modern cars are more computerized than ever. Infotainment and navigation systems, Wi-Fi, automatic software updates, and other innovations aim to make driving more convenient. But vehicle technologies haven't kept pace with today's more hostile security environment, leaving millions vulnerable to attack. The Car Hacker's Handbook will give you a deeper understanding of the computer systems and embedded software in modern vehicles. It begins by examining vulnerabilities and providing detailed explanations of communications over the CAN bus and between devices and systems. Then, once you have an understanding of a vehicle's communication network, you'll learn how to intercept data and perform specific hacks to track vehicles, unlock doors, glitch engines, flood communication, and more. With a focus on low-cost, open source hacking tools such as Metasploit, Wireshark, Kayak, can-utils, and ChipWhisperer, The Car Hacker's Handbook will show you how to: -Build an accurate threat model for your vehicle -Reverse engineer the CAN bus to fake engine signals -Exploit vulnerabilities in diagnostic and data-logging systems -Hack the ECU and other firmware and embedded systems -Feed exploits through infotainment and vehicle-to-vehicle communication systems -Override factory settings with performance-tuning techniques -Build physical and virtual test benches to try out exploits safely If you're curious about automotive security and have the urge to hack a two-ton computer, make The Car Hacker's Handbook your first stop.

Voice over Internet Protocol (VoIP) networks, the technology used to place phone calls through the Internet, suffer from the same security holes as standard IP networks. This book reviews the many possible VoIP attacks, and discusses the best defenses against them.

Modern web applications are built on a tangle of technologies that have been developed over time and then haphazardly pieced together. Every piece of the web application stack, from HTTP requests to browser-side scripts, comes with important yet subtle security consequences. To keep users safe, it is essential for developers to confidently navigate this landscape. In The Tangled Web, Michal Zalewski, one of the world's top browser security experts, offers a compelling narrative that explains exactly how browsers work and why they're fundamentally insecure. Rather than dispense simplistic advice on vulnerabilities, Zalewski examines the entire browser security model, revealing weak points and providing crucial information for shoring up web application security. You'll learn how to: -Perform common but surprisingly complex tasks such as URL parsing and HTML sanitization -Use modern security features like Strict Transport Security, Content Security Policy, and Cross-Origin Resource Sharing -Leverage many variants of the same-origin policy to safely compartmentalize complex web applications and protect user credentials in case of XSS bugs -Build mashups and embed gadgets without getting stung by the tricky frame navigation policy -Embed or host user-supplied content without running into the trap of content sniffing For quick reference, "Security Engineering Cheat Sheets" at the end of each chapter offer ready solutions to problems you're most likely to encounter. With coverage extending as far as planned HTML5 features, The Tangled Web will help you create secure web applications that stand the test of time.

Bug Bounty Bootcamp teaches you how to hack web applications. You will learn how to perform reconnaissance on a target, how to identify vulnerabilities, and how to exploit them. You'll also learn how to navigate bug bounty programs set up by companies to reward security professionals for finding bugs in their web applications. Bug bounty programs are company-sponsored programs that invite researchers to search for vulnerabilities on their applications and reward them for their findings. This book is designed to help beginners with little to no security experience learn web hacking, find bugs, and stay competitive in this booming and lucrative industry. You'll start by learning how to

choose a program, write quality bug reports, and maintain professional relationships in the industry. Then you'll learn how to set up a web hacking lab and use a proxy to capture traffic. In Part 3 of the book, you'll explore the mechanisms of common web vulnerabilities, like XSS, SQL injection, and template injection, and receive detailed advice on how to find them and bypass common protections. You'll also learn how to chain multiple bugs to maximize the impact of your vulnerabilities. Finally, the book touches on advanced techniques rarely covered in introductory hacking books but that are crucial to understand to hack web applications. You'll learn how to hack mobile apps, review an application's source code for security issues, find vulnerabilities in APIs, and automate your hacking process. By the end of the book, you'll have learned the tools and techniques necessary to be a competent web hacker and find bugs on a bug bounty program.

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.

The Hardware Hacking Handbook takes you deep inside embedded devices to show how different kinds of attacks work, then guides you through each hack on real hardware. Embedded devices are chip-size microcomputers small enough to be included in the structure of the object they control, and they're everywhere—in phones, cars, credit cards, laptops, medical equipment, even critical infrastructure. This means understanding their security is critical. The Hardware Hacking Handbook takes you deep inside different types of embedded systems, revealing the designs, components, security limits, and reverse-engineering challenges you need to know for executing effective hardware attacks. Written with wit and infused with hands-on lab experiments, this handbook puts you in the role of an attacker interested in breaking security to do good. Starting with a crash course on the architecture of embedded devices, threat modeling, and attack trees, you'll go on to explore hardware interfaces, ports and communication protocols, electrical signaling, tips for analyzing firmware images, and more. Along the way, you'll use a home testing lab to perform fault-injection, side-channel (SCA), and simple and differential power analysis (SPA/DPA) attacks on a variety of real devices, such as a crypto wallet. The authors also share insights into real-life attacks on embedded systems, including Sony's PlayStation 3, the Xbox 360, and Philips Hue lights, and provide an appendix of the equipment needed for your hardware hacking lab – like a multimeter and an oscilloscope – with options for every type of budget. You'll learn: • How to model security threats, using attacker profiles, assets, objectives, and countermeasures • Electrical basics that will help you understand communication interfaces, signaling, and measurement • How to identify injection points for executing clock, voltage, electromagnetic, laser, and body-biasing fault attacks, as well as practical injection tips • How to use timing and power analysis attacks to extract passwords and cryptographic keys • Techniques for leveling up both simple and differential power analysis, from practical measurement tips to filtering, processing, and visualization Whether you're an industry engineer tasked with understanding these attacks, a student starting out in the field, or an electronics hobbyist curious about replicating existing work, The Hardware Hacking Handbook is an indispensable resource – one you'll always want to have onhand.

Malware Data Science explains how to identify, analyze, and classify large-scale malware using machine learning and data visualization. Security has become a "big data" problem. The growth rate of malware has accelerated to tens of millions of new files per year while our networks generate an ever-larger flood of security-relevant data each day. In order to defend against these advanced attacks, you'll need to know how to think like a data scientist. In Malware Data Science, security data scientist Joshua Saxe introduces machine learning, statistics, social network analysis, and data visualization, and shows you how to apply these methods to malware detection and analysis. You'll learn how to: - Analyze malware using static analysis - Observe malware behavior using dynamic analysis - Identify adversary groups through shared code analysis - Catch 0-day vulnerabilities by building your own machine learning detector - Measure malware detector accuracy - Identify malware campaigns, trends, and relationships through data visualization Whether you're a malware analyst looking to add skills to your existing arsenal, or a data scientist interested in attack detection and threat intelligence, Malware Data Science will help you stay ahead of the curve.

Website security made easy. This book covers the most common ways websites get hacked and how web developers can defend themselves. The world has changed. Today, every time you make a site live, you're opening it up to attack. A first-time developer can easily be discouraged by the difficulties involved with properly securing a website. But have hope: an army of security researchers is out there discovering, documenting, and fixing security flaws. Thankfully, the tools you'll need to secure your site are freely

available and generally easy to use. Web Security for Developers will teach you how your websites are vulnerable to attack and how to protect them. Each chapter breaks down a major security vulnerability and explores a real-world attack, coupled with plenty of code to show you both the vulnerability and the fix. You'll learn how to:

- Protect against SQL injection attacks, malicious JavaScript, and cross-site request forgery
- Add authentication and shape access control to protect accounts
- Lock down user accounts to prevent attacks that rely on guessing passwords, stealing sessions, or escalating privileges
- Implement encryption
- Manage vulnerabilities in legacy code
- Prevent information leaks that disclose vulnerabilities
- Mitigate advanced attacks like malvertising and denial-of-service

As you get stronger at identifying and fixing vulnerabilities, you'll learn to deploy disciplined, secure code and become a better programmer along the way.

Like the best-selling Black Hat Python, Black Hat Go explores the darker side of the popular Go programming language. This collection of short scripts will help you test your systems, build and automate tools to fit your needs, and improve your offensive security skillset. Black Hat Go explores the darker side of Go, the popular programming language revered by hackers for its simplicity, efficiency, and reliability. It provides an arsenal of practical tactics from the perspective of security practitioners and hackers to help you test your systems, build and automate tools to fit your needs, and improve your offensive security skillset, all using the power of Go. You'll begin your journey with a basic overview of Go's syntax and philosophy and then start to explore examples that you can leverage for tool development, including common network protocols like HTTP, DNS, and SMB. You'll then dig into various tactics and problems that penetration testers encounter, addressing things like data pilfering, packet sniffing, and exploit development. You'll create dynamic, pluggable tools before diving into cryptography, attacking Microsoft Windows, and implementing steganography. You'll learn how to:

- Make performant tools that can be used for your own security projects
- Create usable tools that interact with remote APIs
- Scrape arbitrary HTML data
- Use Go's standard package, net/http, for building HTTP servers
- Write your own DNS server and proxy
- Use DNS tunneling to establish a C2 channel out of a restrictive network
- Create a vulnerability fuzzer to discover an application's security weaknesses
- Use plug-ins and extensions to future-proof products

Build an RC2 symmetric-key brute-forcer

- Implant data within a Portable Network Graphics (PNG) image.

Are you ready to add to your arsenal of security tools? Then let's Go!

The Metasploit Framework makes discovering, exploiting, and sharing vulnerabilities quick and relatively painless. But while Metasploit is used by security professionals everywhere, the tool can be hard to grasp for first-time users. Metasploit: The Penetration Tester's Guide fills this gap by teaching you how to harness the Framework and interact with the vibrant community of Metasploit contributors. Once you've built your foundation for penetration testing, you'll learn the Framework's conventions, interfaces, and module system as you launch simulated attacks. You'll move on to advanced penetration testing techniques, including network reconnaissance and enumeration, client-side attacks, wireless attacks, and targeted social-engineering attacks. Learn how to:

- Find and exploit unmaintained, misconfigured, and unpatched systems
- Perform reconnaissance and find valuable information about your target
- Bypass anti-virus technologies and circumvent security controls
- Integrate Nmap, NeXpose, and Nessus with Metasploit to automate discovery
- Use the Meterpreter shell to launch further attacks from inside the network
- Harness standalone Metasploit utilities, third-party tools, and plug-ins
- Learn how to write your own Meterpreter post exploitation modules and scripts

You'll even touch on exploit discovery for zero-day research, write a fuzzer, port existing exploits into the Framework, and learn how to cover your tracks. Whether your goal is to secure your own networks or to put someone else's to the test, Metasploit: The Penetration Tester's Guide will take you there and beyond.

"This book will be riveting reading for security professionals and students, as well as technophiles interested in learning about how computer security fits into the big picture and high-level hackers seeking to broaden their understanding of their craft."--BOOK JACKET.

Learn to use C#'s powerful set of core libraries to automate tedious yet important tasks like performing vulnerability scans, malware analysis, and incident response. With some help from Mono, you can write your own practical security tools that will run on Mac, Linux, and even mobile devices. Following a crash course in C# and some of its advanced features, you'll learn how to:

- Write fuzzers that use the HTTP and XML libraries to scan for SQL and XSS injection
- Generate shellcode in Metasploit to create cross-platform and cross-architecture payloads
- Automate Nessus, OpenVAS, and sqlmap to scan for vulnerabilities and exploit SQL injections
- Write a .NET decompiler for Mac and Linux
- Parse and read offline registry hives to dump system information
- Automate the security tools Arachni and Metasploit using their MSGPACK RPCs

Streamline and simplify your work day with Gray Hat C# and C#'s extensive repertoire of powerful tools and libraries.

An ethical introduction to social engineering, an attack technique that leverages psychology, deception, and publicly available information to breach the defenses of a human target in order to gain access to an asset. Social engineering is key to the effectiveness of any computer security professional. Practical Social Engineering teaches you how to leverage human psychology and publicly available information to attack a target. The book includes sections on how to evade detection, spear phish, generate reports, and protect victims to ensure their well-being. You'll learn how to collect information about a target and how to exploit that information to make your attacks more effective. You'll also learn how to defend yourself or your workplace against social engineering attacks. Case studies throughout offer poignant examples such as how the author was able to piece together the details of a person's life simply by gathering details from an overheard restaurant conversation. Gray walks you through the sometimes difficult decision making process that every ethical social engineer must go through when implementing a phishing engagement including how to decide whether to do things manually or use automated tools; even how to set up your web server and build other technical tools necessary to succeed.

This practical guide to modern encryption breaks down the fundamental mathematical concepts at the heart of cryptography without shying away from meaty discussions of how they work. You'll learn about authenticated encryption, secure randomness, hash functions, block ciphers, and public-key techniques such as RSA and elliptic curve cryptography. You'll also learn:

- Key concepts in cryptography, such as computational security, attacker models, and forward secrecy
- The strengths and limitations of the TLS protocol behind HTTPS secure websites
- Quantum computation and post-quantum cryptography
- About various vulnerabilities by examining numerous code examples and use cases
- How to choose the best algorithm or protocol and ask vendors the right questions

Each chapter includes a discussion of common implementation mistakes using real-world examples and details what could go wrong and how to avoid these pitfalls. Whether you're a seasoned practitioner or a beginner looking to dive into the field, Serious Cryptography will provide a complete survey of modern encryption and its

applications.

Provides information on ways to use Wireshark to capture and analyze packets, covering such topics as building customized capture and display filters, graphing traffic patterns, and building statistics and reports.

An introduction to a range of cyber security issues explains how to utilize graphical approaches to displaying and understanding computer security data, such as network traffic, server logs, and executable files, offering guidelines for identifying a network attack, how to assess a system for vulnerabilities with Afterglow and RUMINT visualization software, and how to protect a system from additional attacks. Original. (Intermediate)

This is the eBook version of the printed book. If the print book includes a CD-ROM, this content is not included within the eBook version. FUZZING Master One of Today's Most Powerful Techniques for Revealing Security Flaws! Fuzzing has evolved into one of today's most effective approaches to test software security. To "fuzz," you attach a program's inputs to a source of random data, and then systematically identify the failures that arise. Hackers have relied on fuzzing for years: Now, it's your turn. In this book, renowned fuzzing experts show you how to use fuzzing to reveal weaknesses in your software before someone else does. Fuzzing is the first and only book to cover fuzzing from start to finish, bringing disciplined best practices to a technique that has traditionally been implemented informally. The authors begin by reviewing how fuzzing works and outlining its crucial advantages over other security testing methods. Next, they introduce state-of-the-art fuzzing techniques for finding vulnerabilities in network protocols, file formats, and web applications; demonstrate the use of automated fuzzing tools; and present several insightful case histories showing fuzzing at work. Coverage includes: • Why fuzzing simplifies test design and catches flaws other methods miss • The fuzzing process: from identifying inputs to assessing "exploitability" • Understanding the requirements for effective fuzzing • Comparing mutation-based and generation-based fuzzers • Using and automating environment variable and argument fuzzing • Mastering in-memory fuzzing techniques • Constructing custom fuzzing frameworks and tools • Implementing intelligent fault detection Attackers are already using fuzzing. You should, too. Whether you're a developer, security engineer, tester, or QA specialist, this book teaches you how to build secure software.

A comprehensive guide to penetration testing cloud services deployed with Microsoft Azure, the popular cloud computing service provider used by companies like Warner Brothers and Apple. Pentesting Azure Applications is a comprehensive guide to penetration testing cloud services deployed in Microsoft Azure, the popular cloud computing service provider used by numerous companies. You'll start by learning how to approach a cloud-focused penetration test and how to obtain the proper permissions to execute it; then, you'll learn to perform reconnaissance on an Azure subscription, gain access to Azure Storage accounts, and dig into Azure's Infrastructure as a Service (IaaS). You'll also learn how to: - Uncover weaknesses in virtual machine settings that enable you to acquire passwords, binaries, code, and settings files - Use PowerShell commands to find IP addresses, administrative users, and resource details - Find security issues related to multi-factor authentication and management certificates - Penetrate networks by enumerating firewall rules - Investigate specialized services like Azure Key Vault, Azure Web Apps, and Azure Automation - View logs and security events to find out when you've been caught Packed with sample pentesting scripts, practical advice for completing security assessments, and tips that explain how companies can configure Azure to foil common attacks, Pentesting Azure Applications is a clear overview of how to effectively perform cloud-focused security tests and provide accurate findings and recommendations.

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.

High-level overview of the information security field. Covers key concepts like confidentiality, integrity, and availability, then dives into practical applications of these ideas in the areas of operational, physical, network, application, and operating system security. In this high-level survey of the information security field, best-selling author Jason Andress covers the basics of a wide variety of topics, from authentication and authorization to maintaining confidentiality and performing penetration testing. Using real-world security breaches as examples, Foundations of Information Security explores common applications of these concepts, such as operations security, network design, hardening and patching operating systems, securing mobile devices, as well as tools for assessing the security of hosts and applications. You'll also learn the basics of topics like: • Multifactor authentication and how biometrics and hardware tokens can be used to harden the authentication process • The principles behind modern cryptography, including symmetric and asymmetric algorithms, hashes, and certificates • The laws and regulations that protect systems and data • Anti-malware tools, firewalls, and intrusion detection systems • Vulnerabilities such as buffer overflows and race conditions A valuable resource for beginning security professionals, network systems administrators, or anyone new to the field, Foundations of Information Security is a great place to start your journey into the dynamic and rewarding field of information security.

The definitive guide to hacking the world of the Internet of Things (IoT) -- Internet connected devices such as medical devices, home assistants, smart home appliances and more. Drawing from the real-life exploits of five highly regarded IoT security researchers, Practical IoT Hacking teaches you how to test IoT systems, devices, and protocols to mitigate risk. The book begins by walking you through common threats and a threat modeling framework. You'll develop a security testing methodology, discover the art of passive reconnaissance, and assess security on all layers of an IoT system. Next, you'll perform VLAN hopping, crack MQTT authentication, abuse UPnP, develop an mDNS poisoner, and craft WS-Discovery attacks. You'll tackle both hardware hacking and radio hacking, with in-depth coverage of attacks against embedded IoT devices and RFID systems. You'll also learn how to: • Write a DICOM service scanner as an NSE module • Hack a microcontroller through the UART and SWD interfaces • Reverse engineer firmware and analyze mobile companion apps • Develop an NFC fuzzer using Proxmark3 • Hack a smart home by jamming wireless alarms, playing back IP camera feeds, and controlling a smart treadmill The tools and devices you'll use are affordable and readily available, so you can easily practice what you learn. Whether you're a security researcher, IT team member, or hacking hobbyist, you'll find Practical IoT Hacking indispensable in your efforts to hack all the things REQUIREMENTS: Basic knowledge of Linux command line, TCP/IP, and programming

A hands-on guide to hacking computer systems from the ground up, from capturing traffic to crafting sneaky, successful trojans. A crash course in modern hacking techniques, Ethical Hacking is already being

used to prepare the next generation of offensive security experts. In its many hands-on labs, you'll explore crucial skills for any aspiring penetration tester, security researcher, or malware analyst. You'll begin with the basics: capturing a victim's network traffic with an ARP spoofing attack and then viewing it in Wireshark. From there, you'll deploy reverse shells that let you remotely run commands on a victim's computer, encrypt files by writing your own ransomware in Python, and fake emails like the ones used in phishing attacks. In advanced chapters, you'll learn how to fuzz for new vulnerabilities, craft trojans and rootkits, exploit websites with SQL injection, and escalate your privileges to extract credentials, which you'll use to traverse a private network. You'll work with a wide range of professional penetration testing tools—and learn to write your own tools in Python—as you practice tasks like:

- Deploying the Metasploit framework's reverse shells and embedding them in innocent-seeming files
- Capturing passwords in a corporate Windows network using Mimikatz
- Scanning (almost) every device on the internet to find potential victims
- Installing Linux rootkits that modify a victim's operating system
- Performing advanced Cross-Site Scripting (XSS) attacks that execute sophisticated JavaScript payloads

Along the way, you'll gain a foundation in the relevant computing technologies. Discover how advanced fuzzers work behind the scenes, learn how internet traffic gets encrypted, explore the inner mechanisms of nation-state malware like Drovorub, and much more. Developed with feedback from cybersecurity students, Ethical Hacking addresses contemporary issues in the field not often covered in other books and will prepare you for a career in penetration testing. Most importantly, you'll be able to think like an ethical hacker?: someone who can carefully analyze systems and creatively gain access to them.

Rigorous in its definitions yet easy to read, Crypto Dictionary covers the field of cryptography in an approachable, and sometimes humorous way. Expand your mind and your crypto knowledge with the ultimate desktop dictionary for all things cryptography. Written by a renowned cryptographer for experts and novices alike, Crypto Dictionary is rigorous in its definitions, yet easy to read and laced with humor. Flip to any random page to find something new, interesting, or mind-boggling, such as:

- A survey of crypto algorithms both widespread and niche, from RSA and DES to the USSR's GOST cipher
- Trivia from the history of cryptography, such as the MINERVA backdoor in Crypto AG's encryption algorithms
- An explanation of why the reference to the Blowfish cipher in the TV show 24 makes absolutely no sense
- Types of cryptographic protocols like zero-knowledge; security; and proofs of work, stake, and resource
- A polemic against referring to cryptocurrency as "crypto"
- Discussions of numerous cryptographic attacks, including slide and biclique

The book also looks toward the future of cryptography, with discussions of the threat quantum computing poses to current cryptosystems and a nod to post-quantum algorithms, such as lattice-based cryptographic schemes. With hundreds of incisive entries organized alphabetically, Crypto Dictionary is the crypto go-to guide you'll always want within reach.

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