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File System Forensic Analysis - Brian Carrier 2005-03-17
The Definitive Guide to File System Analysis: Key Concepts and Hands-on Techniques Most digital evidence is stored within the computer's file system, but understanding how file systems work is one of the most technically challenging concepts for a digital investigator because there exists little documentation. Now, security expert Brian Carrier has written the definitive reference for everyone who wants to understand and be able to testify about how file system analysis is performed. Carrier begins with an overview of investigation and computer foundations and then gives an authoritative, comprehensive, and illustrated overview of contemporary volume and file systems: Crucial information for discovering hidden evidence, recovering deleted data, and validating your tools. Along the way, he describes data structures, analyzes example disk images, provides advanced investigation scenarios, and uses today's most valuable open source file system analysis tools—including tools he personally developed. Coverage includes Preserving the digital crime scene and duplicating hard disks for "dead analysis" Identifying hidden data on a disk's Host Protected Area (HPA) Reading source data: Direct versus BIOS access, dead versus live acquisition, error handling, and more Analyzing DOS, Apple, and GPT partitions; BSD disk labels; and Sun Volume Table of Contents using key concepts, data structures, and specific techniques Analyzing the contents of multiple disk volumes, such as RAID and disk spanning Analyzing FAT, NTFS, Ext2, Ext3, UFS1, and UFS2 file systems using key concepts, data structures, and specific techniques Finding evidence: File metadata, recovery of deleted files, data hiding locations, and more Using The Sleuth Kit (TSK), Autopsy Forensic Browser, and related open source tools When it comes to file system analysis, no other book offers this much detail or expertise. Whether you're a digital forensics specialist, incident response team member, law enforcement officer, corporate security specialist, or auditor, this book will become an indispensable resource for forensic investigations, no matter what analysis tools you use.
Top-Down Network Design - Priscilla Oppenheimer 2010-08-24
Objectives The purpose of Top-Down Network Design, Third Edition, is to help you design networks that meet a customer’s business and technical goals. Whether your customer is another department within your own company or an external client, this book provides you with tested processes and tools to help you understand traffic flow, protocol behavior, and internetworking technologies. After completing this book, you will be equipped to design enterprise networks that meet a customer’s requirements for functionality, capacity, performance, availability, scalability, affordability, security, and manageability. Audience This book is for you if you are an internetworking professional responsible for designing and maintaining medium- to large-sized enterprise networks. If you are a network engineer, architect, or technician who has a working knowledge of network protocols and technologies, this book will provide you with practical advice on applying your knowledge to internetwork design. This book also includes useful information for consultants, systems engineers, and sales engineers who design corporate networks for clients. In the fast-paced presales environment of many systems engineers, it often is difficult to slow down and insist on a top-down, structured systems analysis approach. Wherever possible, this book includes shortcuts and assumptions that can be made to speed up the network design process. Finally, this book is useful for undergraduate and graduate students in computer science and information technology disciplines. Students who have taken one or two courses in networking theory will find Top-Down Network Design, Third Edition, an approachable introduction to the engineering and business issues related to developing real-world networks that solve typical business problems. Changes for the Third Edition Networks have changed in many ways since the second edition was published. Many legacy technologies have disappeared and are no longer covered in the book. In addition, modern networks have become multifaceted, providing support for numerous bandwidth-hungry applications and a variety of devices, ranging from smart phones to tablet PCs to high-end servers. Modern users expect the network to be available all the time, from any device, and to let them securely collaborate with coworkers, friends, and family. Networks today support voice, video, high-definition TV, desktop sharing, virtual meetings, online training, virtual reality, and applications that we can’t even imagine that brilliant college students are busily creating in their dorm rooms. As applications rapidly change and put more demand on networks, the need to teach a systematic approach to network design is even more important than ever. With that need in mind, the third edition has been retooled to make it an ideal textbook for college students. The third edition features review questions and design scenarios at the end of each chapter to help students learn top-down network design. To address new demands on modern networks, the third edition of Top-Down Network Design also has updated material on the following topics: ¿ Network redundancy ¿ Modularity in network designs ¿ The Cisco SAFE security reference architecture ¿ The Rapid Spanning Tree Protocol (RSTP) ¿ Internet Protocol version 6 (IPv6) ¿ Ethernet scalability options, including 10-Gbps Ethernet and Metro Ethernet ¿ Network design and management tools
Network Maintenance and Troubleshooting Guide - Neal Allen 2000
Today's rapidly changing technology offers increasingly complex challenges to the network administrator, MIS director and others who are responsible for the overall health of the network. This Network Maintenance and Troubleshooting Guide picks up where other network manuals and texts leave off. It addresses the areas of how to anticipate and prevent problems, how to solve problems, how to operate a healthy network and how to troubleshoot. Network Maintenance and Troubleshooting Guide also provides basic technical and troubleshooting information about cable testing, Ethernet and Token Ring networks and additional information about Novell's IPX(R) protocol and TCP/IP. Examples are shown as either diagrams and tables, or screen captures from Fluke instruments. Network professionals will appreciate the guide's "real world" orientation toward solving network crises quickly, by guiding readers to solutions for restoration of end to end data delivery as quickly as possible. The network novice will learn from the simplified descriptions about networking technology in the Appendices.
Practical Packet Analysis, 3rd Edition - Chris Sanders 2017

TCP/IP Network Administration - Craig Hunt 2002-04-04
This complete guide to setting up and running a TCP/IP network is essential for network administrators, and invaluable for users of home systems that access the Internet. The book starts with the fundamentals -- what protocols do and how they work, how addresses and routing are used to move data through the network, how to set up your network connection -- and then covers, in detail, everything you need to know to exchange information via the Internet.Included are discussions on advanced routing protocols (RIPv2, OSPF, and BGP) and the gated software package that implements them, a tutorial on configuring important network services -- including DNS, Apache, sendmail, Samba, PPP, and DHCP -- as well as expanded chapters on troubleshooting and security. TCP/IP Network Administration is also a command and syntax reference for important packages such as gated, pppd, named, dhcpd, and sendmail.With coverage that includes Linux, Solaris, BSD, and

System V TCP/IP implementations, the third edition contains: Overview of TCP/IP Delivering the data Network services Getting startedM Basic configuration Configuring the interface Configuring routing Configuring DNS Configuring network servers Configuring sendmail Configuring Apache Network security Troubleshooting Appendices include dip, ppd, and chat reference, a gated reference, a dhcpd reference, and a sendmail reference This new edition includes ways of configuring Samba to provide file and print sharing on networks that integrate Unix and Windows, and a new chapter is dedicated to the important task of configuring the Apache web server. Coverage of network security now includes details on OpenSSH, stunnel, gpg, iptables, and the access control mechanism in xinetd. Plus, the book offers updated information about DNS, including details on BIND 8 and BIND 9, the role of classless IP addressing and network prefixes, and the changing role of registrars.Without a doubt, TCP/IP Network Administration, 3rd Edition is a must-have for all network administrators and anyone who deals with a network that transmits data over the Internet.

Rootkits and Bootkits - Alex Matrosov 2019-05-07

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.

Network Forensics - Sherri Davidoff 2012-06-18

"This is a must-have work for anybody in information security, digital forensics, or involved with incident handling. As we move away from traditional disk-based analysis into the interconnectivity of the cloud, Sherri and Jonathan have created a framework and roadmap that will act as a seminal work in this developing field." – Dr. Craig S. Wright (GSE), Asia Pacific Director at Global Institute for Cyber Security + Research. "It's like a symphony meeting an encyclopedia meeting a spy novel." –Michael Ford, Corero Network Security On the Internet, every action leaves a mark–in routers, firewalls, web proxies, and within network traffic itself. When a hacker breaks into a bank, or an insider smuggles secrets to a competitor, evidence of the crime is always left behind. Learn to recognize hackers' tracks and uncover network-based evidence in Network Forensics: Tracking Hackers through Cyberspace. Carve suspicious email attachments from packet captures. Use flow records to track an intruder as he pivots through the network. Analyze a real-world wireless encryption-cracking attack (and then crack the key yourself). Reconstruct a suspect's web surfing history–and cached web pages, too–from a web proxy. Uncover DNS-tunneled traffic. Dissect the Operation Aurora exploit, caught on the wire. Throughout the text, step-by-step case studies guide you through the analysis of network-based evidence. You can download the evidence files from the authors' web site (lmgsecurity.com), and follow along to gain hands-on experience. Hackers leave footprints all across the Internet. Can you find their tracks and solve the case? Pick up Network Forensics and find out.

Wireshark 2 Quick Start Guide - Charit Mishra 2018-06-27

Protect your network as you move from the basics of the Wireshark scenarios to detecting and resolving network anomalies. Key Features Learn protocol analysis, optimization and troubleshooting using Wireshark, an open source tool Learn the usage of filtering and statistical tools to ease your troubleshooting job Quickly perform root-cause analysis over your network in an event of network failure or a security breach Book Description Wireshark is an open source protocol analyser, commonly used among the network and security professionals. Currently being developed and maintained by volunteer contributions of networking experts from all over the globe. Wireshark is mainly used to analyze network traffic, analyse network issues, analyse protocol behaviour, etc. - it lets you see what's going on in your network at a granular level. This book takes you from the basics of the Wireshark environment to detecting and resolving network anomalies. This book will start from the basics of setting up your Wireshark environment and will walk you through the fundamentals of networking and packet analysis. As you make your way through the chapters, you will discover different ways to analyse network traffic through creation and usage of filters and statistical features. You will look at network security packet analysis, command-line utilities, and other advanced tools that will come in handy when working with day-to-day network operations. By the end of this book, you have enough skill with Wireshark 2 to overcome real-world network challenges. What you will learn Learn how TCP/IP works Install Wireshark and understand its GUI Creation and Usage of Filters to ease analysis process Understand the usual and unusual behaviour of Protocols Troubleshoot network anomalies quickly with help of Wireshark Use Wireshark as a diagnostic tool for network security analysis to identify source of malware Decrypting wireless traffic Resolve latencies and bottleneck issues in the network Who this book is for If you are a security professional or a network enthusiast who is interested in understanding the internal working of networks and packets, then this book is for you. No prior knowledge of Wireshark is needed.

Ethical Hacking - Daniel Graham 2021-09-21

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.

Simulation of Dynamic Systems with MATLAB® and Simulink® - Harold Klee 2018-02-02

Continuous-system simulation is an increasingly important tool for optimizing the performance of real-world systems. The book presents an integrated treatment of continuous simulation with all the background and essential prerequisites in one setting. It features updated chapters and two new sections on Black Swan and the Stochastic Information Packet (SIP) and Stochastic Library Units with Relationships Preserved (SLURP) Standard. The new edition includes basic concepts, mathematical tools, and the common principles of various simulation models for different phenomena, as well as an abundance of case studies, real-world examples, homework problems, and equations to develop a practical understanding of concepts.

Practical Packet Analysis, 2nd Edition - Chris Sanders 2011

This significantly revised and expanded edition discusses how to use Wireshark to capture raw network traffic, filter and analyze packets, and diagnose common network problems.

Wireshark for Security Professionals - Jessey Bullock 2017-03-20

Master Wireshark to solve real-world security problems If you don't

already use Wireshark for a wide range of information security tasks, you will after this book. Mature and powerful, Wireshark is commonly used to find root cause of challenging network issues. This book extends that power to information security professionals, complete with a downloadable, virtual lab environment. Wireshark for Security Professionals covers both offensive and defensive concepts that can be applied to essentially any InfoSec role. Whether into network security, malware analysis, intrusion detection, or penetration testing, this book demonstrates Wireshark through relevant and useful examples. Master Wireshark through both lab scenarios and exercises. Early in the book, a virtual lab environment is provided for the purpose of getting hands-on experience with Wireshark. Wireshark is combined with two popular platforms: Kali, the security-focused Linux distribution, and the Metasploit Framework, the open-source framework for security testing. Lab-based virtual systems generate network traffic for analysis, investigation and demonstration. In addition to following along with the labs you will be challenged with end-of-chapter exercises to expand on covered material. Lastly, this book explores Wireshark with Lua, the light-weight programming language. Lua allows you to extend and customize Wireshark’s features for your needs as a security professional. Lua source code is available both in the book and online. Lua code and lab source code are available online through GitHub, which the book also introduces. The book’s final two chapters greatly draw on Lua and TShark, the command-line interface of Wireshark. By the end of the book you will gain the following: Master the basics of Wireshark Explore the virtual w4sp-lab environment that mimics a real-world network Gain experience using the Debian-based Kali OS among other systems Understand the technical details behind network attacks Execute exploitation and grasp offensive and defensive activities, exploring them through Wireshark Employ Lua to extend Wireshark features and create useful scripts To sum up, the book content, labs and online material, coupled with many referenced sources of PCAP traces, together present a dynamic and robust manual for information security professionals seeking to leverage Wireshark.

How to Hack Like a Ghost - Sparc Flow 2021-05-11

How to Hack Like a Ghost takes you deep inside the mind of a hacker as you carry out a fictionalized attack against a tech company, teaching cutting-edge hacking techniques along the way. Go deep into the mind of a master hacker as he breaks into a hostile, cloud-based security environment. Sparc Flow invites you to shadow him every step of the way, from recon to infiltration, as you hack a shady, data-driven political consulting firm. While the target is fictional, the corporation’s vulnerabilities are based on real-life weaknesses in today’s advanced cybersecurity defense systems. You’ll experience all the thrills, frustrations, dead-ends, and eureka moments of his mission first-hand, while picking up practical, cutting-edge techniques for penetrating cloud technologies. There are no do-overs for hackers, so your training starts with basic OpSec procedures, using an ephemeral OS, Tor, bouncing servers, and detailed code to build an anonymous, replaceable hacking infrastructure guaranteed to avoid detection. From there, you’ll examine some effective recon techniques, develop tools from scratch, and deconstruct low-level features in common systems to gain access to the target. Spark Flow’s clever insights, witty reasoning, and stealth maneuvers teach you how to think on your toes and adapt his skills to your own hacking tasks. You'll learn: • How to set up and use an array of disposable machines that can renew in a matter of seconds to change your internet footprint • How to do effective recon, like harvesting hidden domains and taking advantage of DevOps automation systems to trawl for credentials • How to look inside and gain access to AWS’s storage systems • How cloud security systems like Kubernetes work, and how to hack them • Dynamic techniques for escalating privileges Packed with interesting tricks, ingenious tips, and links to external resources, this fast-paced, hands-on guide to penetrating modern cloud systems will help hackers of all stripes succeed on their next adventure.

Mathematical Statistics and Data Analysis - John A. Rice 2006-04-28

This is the first text in a generation to re-examine the purpose of the mathematical statistics course. The book's approach interweaves traditional topics with data analysis and reflects the use of the computer with close ties to the practice of statistics. The author stresses analysis of data, examines real problems with real data, and motivates the theory. The book's descriptive statistics, graphical displays, and realistic applications stand in strong contrast to traditional texts that are set in abstract settings. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Practical UNIX and Internet Security - Simson Garfinkel 2003-02-21

When Practical Unix Security was first published more than a decade ago, it became an instant classic. Crammed with information about host security, it saved many a Unix system administrator from disaster. The second edition added much-needed Internet security coverage and doubled the size of the original volume. The third edition is a comprehensive update of this very popular book - a companion for the Unix/Linux system administrator who needs to secure his or her organization's system, networks, and web presence in an increasingly hostile world.Focusing on the four most popular Unix variants today--Solaris, Mac OS X, Linux, and FreeBSD--this book contains new information on PAM (Pluggable Authentication Modules), LDAP, SMB/Samba, anti-theft technologies, embedded systems, wireless and laptop issues, forensics, intrusion detection, chroot jails, telephone scanners and firewalls, virtual and cryptographic filesystems, WebNFS, kernel security levels, outsourcing, legal issues, new Internet protocols and cryptographic algorithms, and much more.Practical Unix & Internet Security consists of six parts: Computer security basics: introduction to security problems and solutions, Unix history and lineage, and the importance of security policies as a basic element of system security. Security building blocks: fundamentals of Unix passwords, users, groups, the Unix filesystem, cryptography, physical security, and personnel security. Network security: a detailed look at modem and dialup security, TCP/IP, securing individual network services, Sun's RPC, various host and network authentication systems (e.g., NIS, NIS+, and Kerberos), NFS and other filesystems, and the importance of secure programming. Secure operations: keeping up to date in today's changing security world, backups, defending against attacks, performing integrity management, and auditing. Handling security incidents: discovering a break-in, dealing with programmed threats and denial of service attacks, and legal aspects of computer security. Appendixes: a comprehensive security checklist and a detailed bibliography of paper and electronic references for further reading and research. Packed with 1000 pages of helpful text, scripts, checklists, tips, and warnings, this third edition remains the definitive reference for Unix administrators and anyone who cares about protecting their systems and data from today's threats.

Mining of Massive Datasets - Jure Leskovec 2014-11-13

Now in its second edition, this book focuses on practical algorithms for mining data from even the largest datasets.

Network Forensics - Ric Messier 2017-08-07

Intensively hands-on training for real-world network forensics Network Forensics provides a uniquely practical guide for IT and law enforcement professionals seeking a deeper understanding of cybersecurity. This book is hands-on all the way—by dissecting packets, you gain fundamental knowledge that only comes from experience. Real packet captures and log files demonstrate network traffic investigation, and the learn-by-doing approach relates the essential skills that traditional forensics investigators may not have. From network packet analysis to host artifacts to log analysis and beyond, this book emphasizes the critical techniques that bring evidence to light. Network forensics is a growing field, and is becoming increasingly central to law enforcement as cybercrime becomes more and more sophisticated. This book provides an unprecedented level of hands-on training to give investigators the skills they need. Investigate packet captures to examine network communications Locate host-based artifacts and analyze network logs Understand intrusion detection systems—and let them do the legwork Have the right architecture and systems in place ahead of an incident Network data is always changing, and is never saved in one place; an investigator must understand how to examine data over time, which involves specialized skills that go above and beyond memory, mobile, or data forensics. Whether you're preparing for a security certification or just seeking deeper training for a law enforcement or IT role, you can only learn so much from concept; to thoroughly understand something, you need to do it. Network Forensics provides intensive hands-on practice with direct translation to real-world application.

The Practice of Network Security - Allan Liska 2003

In The Practice of Network Security, former UUNet networkarchitect Allan Liska shows how to secure enterprise networks in thereal world - where you're constantly under attack and you don't alwaysget the support you need. Liska addresses every facet of networksecurity, including defining security models, access control,Web/DNS/email security, remote access and VPNs, wireless LAN/WANsecurity, monitoring, logging, attack response, and more. Includes adetailed case study on redesigning an insecure enterprise network formaximum security.

Wireshark 101 - Laura Chappell 2017-03-14
Based on over 20 years of analyzing networks and teaching key analysis skills, this Second Edition covers the key features and functions of Wireshark version 2. This book includes 46 Labs and end-of-chapter Challenges to help you master Wireshark for troubleshooting, security, optimization, application analysis, and more.
Practical Packet Analysis, 3E - Chris Sanders 2017-03-30
It’s easy to capture packets with Wireshark, the world’s most popular network sniffer, whether off the wire or from the air. But how do you use those packets to understand what’s happening on your network? Updated to cover Wireshark 2.x, the third edition of Practical Packet Analysis will teach you to make sense of your packet captures so that you can better troubleshoot network problems. You’ll find added coverage of IPv6 and SMTP, a new chapter on the powerful command line packet analyzers tcpdump and TShark, and an appendix on how to read and reference packet values using a packet map. Practical Packet Analysis will show you how to: –Monitor your network in real time and tap live network communications –Build customized capture and display filters –Use packet analysis to troubleshoot and resolve common network problems, like loss of connectivity, DNS issues, and slow speeds –Explore modern exploits and malware at the packet level –Extract files sent across a network from packet captures –Graph traffic patterns to visualize the data flowing across your network –Use advanced Wireshark features to understand confusing captures –Build statistics and reports to help you better explain technical network information to non-techies No matter what your level of experience is, Practical Packet Analysis will show you how to use Wireshark to make sense of any network and get things done.
Network Security Assessment - Chris McNab 2004
A practical handbook for network adminstrators who need to develop and implement security assessment programs, exploring a variety of offensive technologies, explaining how to design and deploy networks that are immune to offensive tools and scripts, and detailing an efficient testing model. Original. (Intermediate)
Network Warrior - Gary A. Donahue 2011-05-13
Pick up where certification exams leave off. With this practical, in-depth guide to the entire network infrastructure, you’ll learn how to deal with real Cisco networks, rather than the hypothetical situations presented on exams like the CCNA. Network Warrior takes you step by step through the world of routers, switches, firewalls, and other technologies based on the author's extensive field experience. You'll find new content for MPLS, IPv6, VoIP, and wireless in this completely revised second edition, along with examples of Cisco Nexus 5000 and 7000 switches throughout. Topics include: An in-depth view of routers and routing Switching, using Cisco Catalyst and Nexus switches as examples SOHO VoIP and SOHO wireless access point design and configuration Introduction to IPv6 with configuration examples Telecom technologies in the data-networking world, including T1, DS3, frame relay, and MPLS Security, firewall theory, and configuration, as well as ACL and authentication Quality of Service (QoS), with an emphasis on low-latency queuing (LLQ) IP address allocation, Network Time Protocol (NTP), and device failures
Designing Secure Software - Loren Kohnfelder 2021-12-21
What every software professional should know about security. Designing Secure Software consolidates Loren Kohnfelder’s more than twenty years of experience into a concise, elegant guide to improving the security of technology products. Written for a wide range of software professionals, it emphasizes building security into software design early and involving the entire team in the process. The book begins with a discussion of core concepts like trust, threats, mitigation, secure design patterns, and cryptography. The second part, perhaps this book’s most unique and important contribution to the field, covers the process of designing and reviewing a software design with security considerations in mind. The final section details the most common coding flaws that create vulnerabilities, making copious use of code snippets written in C and Python to illustrate implementation vulnerabilities. You’ll learn how to: • Identify important assets, the attack surface, and the trust boundaries in a system • Evaluate the effectiveness of various threat mitigation candidates • Work with well-known secure coding patterns and libraries • Understand and prevent vulnerabilities like XSS and CSRF, memory flaws, and more • Use security testing to proactively identify vulnerabilities introduced into code • Review a software design for security flaws effectively and without judgment Kohnfelder’s career, spanning decades at Microsoft and Google, introduced numerous software security initiatives, including the co-creation of the STRIDE threat modeling framework used widely today. This book is a modern, pragmatic consolidation of his best practices, insights, and ideas about the future of software.
A Practical Guide to Advanced Networking - Jeffrey S. Beasley 2012-11-05
A Practical Guide to Advanced Networking, Third Edition takes a pragmatic, hands-on approach to teaching advanced modern networking concepts from the network administrator’s point of view. Thoroughly updated for the latest networking technologies and applications, the book guides you through designing, configuring, and managing campus networks, connecting networks to the Internet, and using the latest networking technologies. The authors first show how to solve key network design challenges, including data flow, selection of network media, IP allocation, subnetting, and configuration of both VLANs and Layer 3 routed networks. Next, they illuminate advanced routing techniques using RIP/RIPv2, OSPF, IS-IS, EIGRP, and other protocols, and show how to address common requirements such as static routing and route redistribution. You’ll find thorough coverage of configuring IP-based network infrastructure, and using powerful WireShark and NetFlow tools to analyze and troubleshoot traffic. A full chapter on security introduces best practices for preventing DoS attacks, configuring access lists, and protecting routers, switches, VPNs, and wireless networks. This book’s coverage also includes IPv6, Linux-based networking, Juniper routers, BGP Internet routing, and Voice over IP (VoIP). Every topic is introduced in clear, easy-to-understand language; key ideas are reinforced with working examples, and hands-on exercises based on powerful network simulation software. Key Pedagogical Features NET-CHALLENGE SIMULATION SOFTWARE provides hands-on experience with advanced router and switch commands, interface configuration, and protocols–now including RIPv2 and IS-IS WIRESHARK NETWORK PROTOCOL ANALYZER TECHNIQUES and EXAMPLES of advanced data traffic analysis throughout PROVEN TOOLS FOR MORE EFFECTIVE LEARNING, including chapter outlines and summaries WORKING EXAMPLES IN EVERY CHAPTER to reinforce key concepts and promote mastery KEY TERMS DEFINITIONS, LISTINGS, and EXTENSIVE GLOSSARY to help you master the language of networking QUESTIONS, PROBLEMS, and CRITICAL THINKING QUESTIONS to help you deepen your understanding CD-ROM includes Net-Challenge Simulation Software and the Wireshark Network Protocol Analyzer Software examples.
Learn Wireshark - Lisa Bock 2019-08-23
Grasp the basics of packet capture and analyze common protocols Key FeaturesTroubleshoot basic to advanced network problems using packet analysisAnalyze common protocols and identify latency issues with WiresharkExplore ways to examine captures to recognize unusual traffic and possible network attacksBook Description Wireshark is a popular and powerful packet analysis tool that helps network administrators investigate latency issues and identify potential attacks. Learn Wireshark provides a solid overview of basic protocol analysis and helps you to navigate the Wireshark interface, so you can confidently examine common protocols such as TCP, IP, and ICMP. The book starts by outlining the benefits of traffic analysis, takes you through the evolution of Wireshark, and then covers the phases of packet analysis. We’ll review some of the command line tools and outline how to download and install Wireshark on either a PC or MAC. You'll gain a better understanding of what happens when you tap into the data stream, and learn how to personalize the Wireshark interface. This Wireshark book compares the display and capture filters and summarizes the OSI model and data encapsulation. You'll gain insights into the protocols that move data in the TCP/IP suite, and dissect the TCP handshake and teardown process. As you advance, you'll explore ways to troubleshoot network latency issues, and discover how to save and export files. Finally, you'll see how you can share captures with your colleagues using Cloudshark. By the end of this book, you'll have a solid understanding of how to monitor and secure your network with the most updated version of Wireshark. What you will learnBecome familiar with the Wireshark interfaceNavigate commonly accessed menu options such as edit, view, and fileUse display and capture filters to examine trafficUnderstand the Open Systems Interconnection (OSI) modelCarry out deep packet analysis of the Internet suite: IP, TCP, UDP, ARP, and ICMPExplore ways to troubleshoot network latency issuesSubset traffic, insert comments, save, export, and share packet capturesWho this book is for This book is for network administrators, security analysts, students, teachers, and anyone interested in learning about packet analysis using Wireshark. Basic knowledge of network fundamentals, devices, and protocols along with an understanding of different topologies will be beneficial.

Hacking- The art Of Exploitation - J. Erickson 2018-03-06
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.
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.
Network Intrusion Detection - Stephen Northcutt 2002
This book is a training aid and reference for intrusion detection analysts. While the authors refer to research and theory, they focus their attention on providing practical information. New to this edition is coverage of packet dissection, IP datagram fields, forensics, and snort filters.
Black Hat Go - Tom Steele 2020-02-04
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 productsBuild 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!
Practical Binary Analysis - Dennis Andriesse 2018-12-11
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.
Applied Network Security Monitoring - Chris Sanders 2013-11-26
Applied Network Security Monitoring is the essential guide to becoming an NSM analyst from the ground up. This book takes a fundamental approach to NSM, complete with dozens of real-world examples that teach you the key concepts of NSM. Network security monitoring is based on the principle that prevention eventually fails. In the current threat landscape, no matter how much you try, motivated attackers will eventually find their way into your network. At that point, it is your ability to detect and respond to that intrusion that can be the difference between a small incident and a major disaster. The book follows the three stages of the NSM cycle: collection, detection, and analysis. As you progress through each section, you will have access to insights from seasoned NSM professionals while being introduced to relevant, practical scenarios complete with sample data. If you've never performed NSM analysis, Applied Network Security Monitoring will give you an adequate grasp on the core concepts needed to become an effective analyst. If you are already a practicing analyst, this book will allow you to grow your analytic technique to make you more effective at your job. Discusses the proper methods for data collection, and teaches you how to become a skilled NSM analyst Provides thorough hands-on coverage of Snort, Suricata, Bro-IDS, SiLK, and Argus Loaded with practical examples containing real PCAP files you can replay, and uses Security Onion for all its lab examples Companion website includes up-to-date blogs from the authors about the latest developments in NSM
Snort Cookbook - Angela Orebaugh 2005-03-29
If you are a network administrator, you're under a lot of pressure to ensure that mission-critical systems are completely safe from malicious code, buffer overflows, stealth port scans, SMB probes, OS fingerprinting attempts, CGI attacks, and other network intruders. Designing a reliable way to detect intruders before they get in is an essential--but often overwhelming--challenge. Snort, the defacto open source standard of intrusion detection tools, is capable of performing real-time traffic analysis and packet logging on IP network. It can perform protocol analysis, content searching, and matching. Snort can save countless headaches; the new Snort Cookbook will save countless hours of sifting through dubious online advice or wordy tutorials in order to leverage the full power of SNORT.Each recipe in the popular and practical problem-solution-discussion O'Reilly cookbook format contains a clear and thorough description of the problem, a concise but complete discussion of a solution, and real-world examples that illustrate that solution. The Snort Cookbook covers important issues that sys admins and security pros will us everyday, such as: installation optimization logging alerting rules and signatures detecting viruses countermeasures detecting common attacks administration honeypots log analysis But the Snort Cookbook offers far more than quick cut-and-paste solutions to

frustrating security issues. Those who learn best in the trenches--and don't have the hours to spare to pore over tutorials or troll online for best-practice snippets of advice--will find that the solutions offered in this ultimate Snort sourcebook not only solve immediate problems quickly, but also showcase the best tips and tricks they need to master be security gurus--and still have a life.

Wireshark Network Analysis - Laura Chappell 2012

"Network analysis is the process of listening to and analyzing network traffic. Network analysis offers an insight into network communications to identify performance problems, locate security breaches, analyze application behavior, and perform capacity planning. Network analysis (aka "protocol analysis") is a process used by IT professionals who are responsible for network performance and security." -- p. 2.

Network Security Through Data Analysis - Michael Collins 2014-02-10

In this practical guide, security researcher Michael Collins shows you several techniques and tools for collecting and analyzing network traffic datasets. You'll understand how your network is used, and what actions are necessary to protect and improve it. Divided into three sections, this book examines the process of collecting and organizing data, various tools for analysis, and several different analytic scenarios and techniques.

Real Options Analysis - Johnathan Mun 2012-07-02

"Mun demystifies real options analysis and delivers a powerful, pragmatic guide for decision-makers and practitioners alike. Finally, there is a book that equips professionals to easily recognize, value, and seize real options in the world around them." --Jim Schreckengast, Senior VP, R&D Strategy, Gemplus International SA, France Completely revised and updated to meet the challenges of today's dynamic business environment, Real Options Analysis, Second Edition offers you a fresh look at evaluating capital investment strategies by taking the strategic decision-making process into consideration. This comprehensive guide provides both a qualitative and quantitative description of real options; the methods used in solving real options; why and when they are used; and the applicability of these methods in decision making.

Practical Statistics for Data Scientists - Peter Bruce 2017-05-10

Statistical methods are a key part of of data science, yet very few data scientists have any formal statistics training. Courses and books on basic statistics rarely cover the topic from a data science perspective. This practical guide explains how to apply various statistical methods to data science, tells you how to avoid their misuse, and gives you advice on what's important and what's not. Many data science resources incorporate statistical methods but lack a deeper statistical perspective. If you’re familiar with the R programming language, and have some exposure to statistics, this quick reference bridges the gap in an accessible, readable format. With this book, you’ll learn: Why exploratory data analysis is a key preliminary step in data science How random sampling can reduce bias and yield a higher quality dataset, even with big data How the principles of experimental design yield definitive answers to questions How to use regression to estimate outcomes and detect anomalies Key classification techniques for predicting which categories a record belongs to Statistical machine learning methods that “learn” from data Unsupervised learning methods for extracting meaning from unlabeled data

The Illustrated Network - Walter Goralski 2009-10-01

In 1994, W. Richard Stevens and Addison-Wesley published a networking classic: TCP/IP Illustrated. The model for that book was a brilliant, unfettered approach to networking concepts that has proven itself over time to be popular with readers of beginning to intermediate networking knowledge. The Illustrated Network takes this time-honored approach and modernizes it by creating not only a much larger and more complicated network, but also by incorporating all the networking advancements that have taken place since the mid-1990s, which are many. This book takes the popular Stevens approach and modernizes it, employing 2008 equipment, operating systems, and router vendors. It presents an ?illustrated? explanation of how TCP/IP works with consistent examples from a real, working network configuration that includes servers, routers, and workstations. Diagnostic traces allow the reader to follow the discussion with unprecedented clarity and precision. True to the title of the book, there are 330+ diagrams and screen shots, as well as topology diagrams and a unique repeating chapter opening diagram. Illustrations are also used as end-of-chapter questions. A complete and modern network was assembled to write this book, with all the material coming from real objects connected and running on the network, not assumptions. Presents a real world networking scenario the way the reader sees them in a device-agnostic world. Doesn't preach one platform or the other. Here are ten key differences between the two: Stevens Goralski's Older operating systems (AIX,svr4,etc.) Newer OSs (XP, Linux, FreeBSD, etc.) Two routers (Cisco, Telebit (obsolete)) Two routers (M-series, J-series) Slow Ethernet and SLIP link Fast Ethernet, Gigabit Ethernet, and SONET/SDH links (modern) Tcpdump for traces Newer, better utility to capture traces (Ethereal, now has a new name!) No IPSec IPSec No multicast Multicast No router security discussed Firewall routers detailed No Web Full Web browser HTML consideration No IPv6 IPv6 overview Few configuration details More configuration details (ie, SSH, SSL, MPLS, ATM/FR consideration, wireless LANS, OSPF and BGP routing protocols New Modern Approach to Popular Topic Adopts the popular Stevens approach and modernizes it, giving the reader insights into the most up-to-date network equipment, operating systems, and router vendors. Shows and Tells Presents an illustrated explanation of how TCP/IP works with consistent examples from a real, working network configuration that includes servers, routers, and workstations, allowing the reader to follow the discussion with unprecedented clarity and precision. Over 330 Illustrations True to the title, there are 330 diagrams, screen shots, topology diagrams, and a unique repeating chapter opening diagram to reinforce concepts Based on Actual Networks A complete and modern network was assembled to write this book, with all the material coming from real objects connected and running on the network, bringing the real world, not theory, into sharp focus.

Practical Packet Analysis - Chris Sanders 2007

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.

Bayesian Data Analysis, Third Edition - Andrew Gelman 2013-11-01

Now in its third edition, this classic book is widely considered the leading text on Bayesian methods, lauded for its accessible, practical approach to analyzing data and solving research problems. Bayesian Data Analysis, Third Edition continues to take an applied approach to analysis using up-to-date Bayesian methods. The authors—all leaders in the statistics community—introduce basic concepts from a data-analytic perspective before presenting advanced methods. Throughout the text, numerous worked examples drawn from real applications and research emphasize the use of Bayesian inference in practice. New to the Third Edition Four new chapters on nonparametric modeling Coverage of weakly informative priors and boundary-avoiding priors Updated discussion of cross-validation and predictive information criteria Improved convergence monitoring and effective sample size calculations for iterative simulation Presentations of Hamiltonian Monte Carlo, variational Bayes, and expectation propagation New and revised software code The book can be used in three different ways. For undergraduate students, it introduces Bayesian inference starting from first principles. For graduate students, the text presents effective current approaches to Bayesian modeling and computation in statistics and related fields. For researchers, it provides an assortment of Bayesian methods in applied statistics. Additional materials, including data sets used in the examples, solutions to selected exercises, and software instructions, are available on the book’s web page.

The Practice of Network Security Monitoring - Richard Bejtlich 2013-07-15

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.