IoT Penetration Testing Cookbook Identify Vulnerabilities And Secure Your Smart Devices

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Penetration Testing - Georgia Weidman 2014-06-14
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.
Practical Web Penetration Testing - Gus Khawaja 2018-06-22
Learn how to execute web application penetration testing end-to-end Key Features Build an end-to-end threat model landscape for web application security Learn both web application vulnerabilities and web intrusion testing Associate network vulnerabilities with a web application infrastructure Book Description Companies all over the world want to hire professionals dedicated to application security. Practical Web Penetration Testing focuses on this very trend, teaching you how to conduct application security testing using real-life scenarios. To start with, you'll set up an environment to perform web application penetration testing. You will then explore different penetration testing concepts such as threat modeling, intrusion test, infrastructure security threat, and more, in combination with advanced concepts such as Python scripting for automation. Once you are done learning the basics, you will discover end-to-end implementation of tools such as Metasploit, Burp Suite, and Kali Linux. Many companies deliver projects into production by using either Agile or Waterfall methodology. This book shows you how to assist any company with their SDLC approach and helps you on your journey to becoming an application security specialist. By the end of this book, you will have hands-on

knowledge of using different tools for penetration testing. What you will learn Learn how to use Burp Suite effectively Use Nmap, Metasploit, and more tools for network infrastructure tests Practice using all web application hacking tools for intrusion tests using Kali Linux Learn how to analyze a web application using application threat modeling Know how to conduct web intrusion tests Understand how to execute network infrastructure tests Master automation of penetration testing functions for maximum efficiency using Python Who this book is for Practical Web Penetration Testing is for you if you are a security professional, penetration tester, or stakeholder who wants to execute penetration testing using the latest and most popular tools. Basic knowledge of ethical hacking would be an added advantage.

Penetration Testing Bootcamp - Jason Beltrame 2017-06-28

Sharpen your pentesting skill in a bootcamp About This Book Get practical demonstrations with in-depth explanations of complex security-related problems Familiarize yourself with the most common web vulnerabilities Get step-by-step guidance on managing testing results and reporting Who This Book Is For This book is for IT security enthusiasts and administrators who want to understand penetration testing quickly. What You Will Learn Perform different attacks such as MiTM, and bypassing SSL encryption 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 Recover lost files, investigate successful hacks, and discover hidden data Write organized and effective penetration testing reports In Detail Penetration Testing Bootcamp delivers practical, learning modules in manageable chunks. Each chapter is delivered in a day, and each day builds your competency in Penetration Testing. This book will begin by taking you through the basics and show you how to set up and maintain the C&C Server. You will also understand how to scan for vulnerabilities and Metasploit, learn how to setup connectivity to a C&C server and maintain that connectivity for your intelligence gathering as well as offsite processing. Using TCPDump filters, you will gain understanding of the sniffing and spoofing traffic. This book will also teach you the importance of clearing up the tracks you leave behind after the penetration test and will show you how to build a report from all the data obtained from the penetration test. In totality, this book will equip you with instructions through rigorous tasks, practical callouts, and assignments to reinforce your understanding of penetration testing. Style and approach This book is delivered in the form of a 10-day boot camp style book. The day-by-day approach will help you get to know everything about penetration testing, from the use of network reconnaissance tools, to the writing of custom zero-day buffer overflow exploits.

Quick Start Guide to Penetration Testing - Sagar Rahalkar 2018-11-29

Get started with NMAP, OpenVAS, and Metasploit in this short book and understand how NMAP, OpenVAS, and Metasploit can be integrated with each other for greater flexibility and efficiency. You will begin by working with NMAP and ZENMAP and learning the basic scanning and enumeration process. After getting to know the differences between TCP and UDP scans, you will learn to fine tune your scans and efficiently use NMAP scripts. This will be followed by an introduction to OpenVAS vulnerability management system. You will then learn to configure OpenVAS and scan for and report vulnerabilities. The next chapter takes you on a detailed tour of Metasploit and its basic commands and configuration. You will then invoke NMAP and OpenVAS scans from Metasploit. Lastly, you will take a look at scanning services with Metasploit and get to know more about Meterpreter, an advanced, dynamically extensible payload that is extended over the network at runtime. The final part of the book concludes by pentesting a system in a real-world scenario, where you will apply the skills you have learnt. What You Will Learn Carry out basic scanning with NMAPInvoke NMAP from Python Use vulnerability scanning and reporting with OpenVAS Master common commands in Metasploit Who This Book Is For Readers new to penetration testing who would like to get a quick start on it.

Penetration Testing with Raspberry Pi - Michael McPhee 2016-11-30

Learn the art of building a low-cost, portable hacking arsenal using Raspberry Pi 3 and Kali Linux 2 About This Book Quickly turn your Raspberry Pi 3 into a low-cost hacking tool using Kali Linux 2 Protect your confidential data by deftly preventing various network security attacks Use Raspberry Pi 3 as honeypots to warn you that hackers are on your wire Who This Book Is For If you are a computer enthusiast who wants to learn advanced hacking techniques using the Raspberry Pi 3 as your pentesting toolbox, then this book is for you. Prior knowledge of networking and Linux would be an advantage. What You Will Learn Install and tune Kali Linux 2 on a Raspberry Pi 3 for hacking Learn how to store and offload pentest data from the Raspberry Pi 3 Plan and perform man-in-the-middle attacks and bypass advanced encryption techniques Compromise systems using various exploits and tools using Kali Linux 2 Bypass security defenses and remove data off a target network Develop a command and control system to manage remotely placed Raspberry Pis Turn a Raspberry Pi 3 into a honeypot to capture sensitive information In Detail This book will show you how to utilize the latest credit card sized Raspberry Pi 3 and create a portable, low-cost hacking tool using Kali Linux 2. You'll begin by installing and tuning Kali Linux 2 on Raspberry Pi 3 and then get started with penetration testing. You will be exposed to various network security scenarios such as wireless security, scanning network packets in order to detect any issues in the network, and capturing sensitive data. You will also learn how to plan and perform various attacks such as man-in-the-middle, password cracking, bypassing SSL encryption, compromising systems using various toolkits, and many more. Finally, you'll see how to bypass security defenses and avoid detection, turn your Pi 3 into a honeypot, and develop a command and control system to manage a remotely-placed Raspberry Pi 3. By the end of this book you will be able to turn Raspberry Pi 3 into a hacking arsenal to leverage the most popular open source toolkit, Kali Linux 2.0. Style and approach This concise and fast-paced guide will ensure you get hands-on with penetration testing right from the start. You will quickly install the powerful Kali Linux 2 on your Raspberry Pi 3 and then learn how to use and conduct fundamental penetration techniques and attacks.

Hackable - Ted Harrington 2020-11-12

If you don't fix your security vulnerabilities, attackers will exploit them. It's simply a matter of who finds them first. If you fail to prove that your software is secure, your sales are at risk too. Whether you're a technology executive, developer, or security professional, you are responsible for securing your application. However, you may be uncertain about what works, what doesn't, how hackers exploit applications, or how much to spend. Or maybe you think you do know, but don't realize what you're doing wrong. To defend against attackers, you must think like them. As a leader of ethical hackers, Ted Harrington helps the world's foremost companies secure their technology. Hackable teaches you exactly how. You'll learn how to eradicate security vulnerabilities, establish a threat model, and build security into the development process. You'll build better, more secure products. You'll gain a competitive edge, earn trust, and win sales.

The Art of Network Penetration Testing - Royce Davis 2020-11-19

The Art of Network Penetration Testing is a guide to simulating an internal security breach. You'll take on the role of the attacker and work through every stage of a professional pentest, from information gathering to seizing control of a system and owning the network. Summary Penetration testing is about more than just getting through a perimeter firewall. The biggest security threats are inside the network, where attackers can rampage through sensitive data by exploiting weak access controls and poorly patched software. Designed for up-and-coming security professionals, The Art of Network Penetration Testing teaches you how to take over an enterprise network from the inside. It lays out every stage of an internal security assessment step-by-step, showing you how to identify weaknesses before a malicious invader can do real damage. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Penetration testers uncover security gaps by attacking networks exactly like malicious intruders do. To become a world-class pentester, you need to master offensive security

concepts, leverage a proven methodology, and practice, practice, practice. Th is book delivers insights from security expert Royce Davis, along with a virtual testing environment you can use to hone your skills. About the book The Art of Network Penetration Testing is a guide to simulating an internal security breach. You'll take on the role of the attacker and work through every stage of a professional pentest, from information gathering to seizing control of a system and owning the network. As you brute force passwords, exploit unpatched services, and elevate network level privileges, you'll learn where the weaknesses are—and how to take advantage of them. What's inside Set up a virtual pentest lab Exploit Windows and Linux network vulnerabilities Establish persistent re-entry to compromised targets Detail your findings in an engagement report About the reader For tech professionals. No security experience required. About the author Royce Davis has orchestrated hundreds of penetration tests, helping to secure many of the largest companies in the world. Table of Contents 1 Network Penetration Testing PHASE 1 - INFORMATION GATHERING 2 Discovering network hosts 3 Discovering network services 4 Discovering network vulnerabilities PHASE 2 - FOCUSED PENETRATION 5 Attacking vulnerable web services 6 Attacking vulnerable database services 7 Attacking unpatched services PHASE 3 - POST-EXPLOITATION AND PRIVILEGE ESCALATION 8 Windows post-exploitation 9 Linux or UNIX post-exploitation 10 Controlling the entire network PHASE 4 - DOCUMENTATION 11 Post-engagement cleanup 12 Writing a solid pentest deliverable

Practical Hardware Pentesting - Jean-Georges Valle 2021-04-01

Explore embedded systems pentesting by applying the most common attack techniques and patterns Key Features Learn various pentesting tools and techniques to attack and secure your hardware infrastructure Find the glitches in your hardware that can be a possible entry point for attacks Discover best practices for securely designing products Book Description Hardware pentesting involves leveraging hardware interfaces and communication channels to find vulnerabilities in a device. Practical Hardware Pentesting will help you to plan attacks, hack your embedded devices, and secure the hardware infrastructure. Throughout the book, you will see how a specific device works, explore the functional and security aspects, and learn how a system senses and communicates with the outside world. You will start by setting up your lab from scratch and then gradually work with an advanced hardware lab. The book will help you get to grips with the global architecture of an embedded system and sniff on-board traffic. You will also learn how to identify and formalize threats to the embedded system and understand its relationship with its ecosystem. Later, you will discover how to analyze your hardware and locate its possible system vulnerabilities before going on to explore firmware dumping, analysis, and exploitation. Finally, focusing on the reverse engineering process from an attacker point of view will allow you to understand how devices are attacked, how they are compromised, and how you can harden a device against the most common hardware attack vectors. By the end of this book, you will be well-versed with security best practices and understand how they can be implemented to secure your hardware. What you will learn Perform an embedded system test and identify security critical functionalities Locate critical security components and buses and learn how to attack them Discover how to dump and modify stored information Understand and exploit the relationship between the firmware and hardware Identify and attack the security functions supported by the functional blocks of the device Develop an attack lab to support advanced device analysis and attacks Who this book is for This book is for security professionals and researchers who want to get started with hardware security assessment but don't know where to start. Electrical engineers who want to understand how their devices can be attacked and how to protect against these attacks will also find this book useful.

Kali Linux Penetration Testing Bible - Gus Khawaja 2021-04-26

Your ultimate guide to pentesting with Kali Linux Kali is a popular and powerful Linux distribution used by cybersecurity professionals around the world. Penetration testers must master Kali's varied library of tools to be effective at their work. The Kali Linux

Penetration Testing Bible is the hands-on and methodology guide for pentesting with Kali. You'll discover everything you need to know about the tools and techniques hackers use to gain access to systems like yours so you can erect reliable defenses for your virtual assets. Whether you're new to the field or an established pentester, you'll find what you need in this comprehensive guide. Build a modern dockerized environment Discover the fundamentals of the bash language in Linux Use a variety of effective techniques to find vulnerabilities (OSINT, Network Scan, and more) Analyze your findings and identify false positives and uncover advanced subjects, like buffer overflow, lateral movement, and privilege escalation Apply practical and efficient pentesting workflows Learn about Modern Web Application Security Secure SDLC Automate your penetration testing with Python

Burp Suite Cookbook - Sunny Wear 2018-09-26

Get hands-on experience in using Burp Suite to execute attacks and perform web assessments Key FeaturesExplore the tools in Burp Suite to meet your web infrastructure security demandsConfigure Burp to fine-tune the suite of tools specific to the targetUse Burp extensions to assist with different technologies commonly found in application stacksBook Description Burp Suite is a Java-based platform for testing the security of your web applications, and has been adopted widely by professional enterprise testers. The Burp Suite Cookbook contains recipes to tackle challenges in determining and exploring vulnerabilities in web applications. You will learn how to uncover security flaws with various test cases for complex environments. After you have configured Burp for your environment, you will use Burp tools such as Spider, Scanner, Intruder, Repeater, and Decoder, among others, to resolve specific problems faced by pentesters. You will also explore working with various modes of Burp and then perform operations on the web. Toward the end, you will cover recipes that target specific test scenarios and resolve them using best practices. By the end of the book, you will be up and running with deploying Burp for securing web applications. What you will learnConfigure Burp Suite for your web applicationsPerform authentication, authorization, business logic, and data validation testingExplore session management and client-side testingUnderstand unrestricted file uploads and server-side request forgeryExecute XML external entity attacks with BurpPerform remote code execution with BurpWho this book is for If you are a security professional, web pentester, or software developer who wants to adopt Burp Suite for applications security, this book is for you.

CompTIA PenTest+ Certification All-in-One Exam Guide (Exam PT0-001) - Raymond Nutting 2018-12-14

This comprehensive exam guide offers 100% coverage of every topic on the CompTIA PenTest+ exam Get complete coverage of all the objectives included on the CompTIA PenTest+ certification exam PT0-001 from this comprehensive resource. Written by an expert penetration tester, the book provides learning objectives at the beginning of each chapter, hands-on exercises, exam tips, and practice questions with in-depth answer explanations. Designed to help you pass the exam with ease, this definitive volume also serves as an essential on-the-job reference. Covers all exam topics, including: •Pre-engagement activities •Getting to know your targets •Network scanning and enumeration •Vulnerability scanning and analysis •Mobile device and application testing •Social engineering •Network-based attacks •Wireless and RF attacks •Web and database attacks •Attacking local operating systems •Physical penetration testing •Writing the pen test report •And more Online content includes: •Interactive performance-based questions •Test engine that provides full-length practice exams or customized quizzes by chapter or by exam domain

IoT Security - Madhusanka Liyanage 2019-12-02

An up-to-date guide to an overview of authentication in the Internet of Things (IoT) The Internet of things (IoT) is the network of the countless physical devices that have the possibility to connect and exchange data. Among the various security requirements, authentication to the IoT is the first step to prevent the impact of attackers. IoT Security offers an important guide into the development of the many authentication mechanisms that provide IoT authentication at various levels such

as user level, device level and network level. The book covers a wide range of topics including an overview of IoT and addresses in detail the security challenges at every layer by considering both the technologies and the architecture used. The authors—noted experts on the topic—provide solutions for remediation of compromised security, as well as methods for risk mitigation, and offer suggestions for prevention and improvement. In addition, IoT Security offers a variety of illustrative use cases. This important book: Offers an authoritative reference designed for use by all IoT stakeholders Includes information for securing devices at the user, device, and network levels Contains a classification of existing vulnerabilities Written by an international group of experts on the topic Provides a guide to the most current information available on IoT security Written for network operators, cloud operators, IoT device manufacturers, IoT device users, wireless users, IoT standardization organizations, and security solution developers, IoT Security is an essential guide that contains information on security features, including underlying networks, architectures, and security requirements.

Internet of Things Security: Principles and Practice - Qinghao Tang 2021-01-27

Over the past few years, Internet of Things has brought great changes to the world. Reports show that, the number of IoT devices is expected to reach 10 billion units within the next three years. The number will continue to rise and wildly use as infrastructure and housewares with each passing day, Therefore, ensuring the safe and stable operation of IoT devices has become more important for IoT manufacturers. Generally, four key aspects are involved in security risks when users use typical IoT products such as routers, smart speakers, and in-car entertainment systems, which are cloud, terminal, mobile device applications, and communication data. Security issues concerning any of the four may lead to the leakage of user sensitive data. Another problem is that most IoT devices are upgraded less frequently, which leads it is difficult to resolve legacy security risks in short term. In order to cope with such complex security risks,Security Companies in China, such as Qihoo 360, Xiaomi, Alibaba and Tencent, and companies in United States, e.g. Amazon, Google, Microsoft and some other companies have invested in security teams to conduct research and analyses, the findings they shared let the public become more aware of IoT device security-related risks. Currently, many IoT product suppliers have begun hiring equipment evaluation services and purchasing security protection products. As a direct participant in the IoT ecological security research project, I would like to introduce the book to anyone who is a beginner that is willing to start the IoT journey, practitioners in the IoT ecosystem, and practitioners in the security industry. This book provides beginners with key theories and methods for IoT device penetration testing; explains various tools and techniques for hardware, firmware and wireless protocol analysis; and explains how to design a secure IoT device system, while providing relevant code details.

Hands-On Penetration Testing on Windows - Phil Bramwell 2018-07-30

Master the art of identifying vulnerabilities within the Windows OS and develop the desired solutions for it using Kali Linux. Key Features Identify the vulnerabilities in your system using Kali Linux 2018.02 Discover the art of exploiting Windows kernel drivers Get to know several bypassing techniques to gain control of your Windows environment Book Description Windows has always been the go-to platform for users around the globe to perform administration and ad hoc tasks, in settings that range from small offices to global enterprises, and this massive footprint makes securing Windows a unique challenge. This book will enable you to distinguish yourself to your clients. In this book, you'll learn advanced techniques to attack Windows environments from the indispensable toolkit that is Kali Linux. We'll work through core network hacking concepts and advanced Windows exploitation techniques, such as stack and heap overflows, precision heap spraying, and kernel exploitation, using coding principles that allow you to leverage powerful Python scripts and shellcode. We'll wrap up with post-exploitation strategies that enable you to go deeper and keep your access. Finally, we'll introduce kernel hacking fundamentals and fuzzing testing, so you can

discover vulnerabilities and write custom exploits. By the end of this book, you'll be well-versed in identifying vulnerabilities within the Windows OS and developing the desired solutions for them. What you will learn Get to know advanced pen testing techniques with Kali Linux Gain an understanding of Kali Linux tools and methods from behind the scenes See how to use Kali Linux at an advanced level Understand the exploitation of Windows kernel drivers Understand advanced Windows concepts and protections, and how to bypass them using Kali Linux Discover Windows exploitation techniques, such as stack and heap overflows and kernel exploitation, through coding principles Who this book is for This book is for penetration testers, ethical hackers, and individuals breaking into the pentesting role after demonstrating an advanced skill in boot camps. Prior experience with Windows exploitation, Kali Linux, and some Windows debugging tools is necessary

Hacking Connected Cars - Alissa Knight 2020-02-25

A field manual on contextualizing cyber threats, vulnerabilities, and risks to connected cars through penetration testing and risk assessment Hacking Connected Cars deconstructs the tactics, techniques, and procedures (TTPs) used to hack into connected cars and autonomous vehicles to help you identify and mitigate vulnerabilities affecting cyber-physical vehicles. Written by a veteran of risk management and penetration testing of IoT devices and connected cars, this book provides a detailed account of how to perform penetration testing, threat modeling, and risk assessments of telematics control units and infotainment systems. This book demonstrates how vulnerabilities in wireless networking, Bluetooth, and GSM can be exploited to affect confidentiality, integrity, and availability of connected cars. Passenger vehicles have experienced a massive increase in connectivity over the past five years, and the trend will only continue to grow with the expansion of The Internet of Things and increasing consumer demand for always-on connectivity. Manufacturers and OEMs need the ability to push updates without requiring service visits, but this leaves the vehicle’s systems open to attack. This book examines the issues in depth, providing cutting-edge preventative tactics that security practitioners, researchers, and vendors can use to keep connected cars safe without sacrificing connectivity. Perform penetration testing of infotainment systems and telematics control units through a step-by-step methodical guide Analyze risk levels surrounding vulnerabilities and threats that impact confidentiality, integrity, and availability Conduct penetration testing using the same tactics, techniques, and procedures used by hackers From relatively small features such as automatic parallel parking, to completely autonomous self-driving cars—all connected systems are vulnerable to attack. As connectivity becomes a way of life, the need for security expertise for in-vehicle systems is becoming increasingly urgent. Hacking Connected Cars provides practical, comprehensive guidance for keeping these vehicles secure.

The IoT Hacker's Handbook - Aditya Gupta 2019-03-30

Take a practioner’s approach in analyzing the Internet of Things (IoT) devices and the security issues facing an IoT architecture. You’ll review the architecture's central components, from hardware communication interfaces, such as UARTand SPI, to radio protocols, such as BLE or ZigBee. You'll also learn to assess a device physically by opening it, looking at the PCB, and identifying the chipsets and interfaces. You'll then use that information to gain entry to the device or to perform other actions, such as dumping encryption keys and firmware. As the IoT rises to one of the most popular tech trends, manufactures need to take necessary steps to secure devices and protect them from attackers. The IoT Hacker's Handbook breaks down the Internet of Things, exploits it, and reveals how these devices can be built securely. What You’ll LearnPerform a threat model of a real-world IoT device and locate all possible attacker entry points Use reverse engineering of firmware binaries to identify security issues Analyze,assess, and identify security issues in exploited ARM and MIPS based binariesSniff, capture, and exploit radio communication protocols, such as Bluetooth Low Energy (BLE), and ZigBee Who This Book is For Those interested in learning about IoT security, such as pentesters working in different domains, embedded device developers, or IT people

wanting to move to an Internet of Things security role.

Iot Penetration Testing Cookbook - Aaron Guzman 2017-11-29

Over 80 recipes to master IoT security techniques.About This Book* Identify vulnerabilities in IoT device architectures and firmware using software and hardware pentesting techniques* Understand radio communication analysis with concepts such as sniffing the air and capturing radio signals* A recipe based guide that will teach you to pentest new and unique set of IoT devices.Who This Book Is ForThis book targets IoT developers, IoT enthusiasts, pentesters, and security professionals who are interested in learning about IoT security. Prior knowledge of basic pentesting would be beneficial.What You Will Learn* Set up an IoT pentesting lab* Explore various threat modeling concepts* Exhibit the ability to analyze and exploit firmware vulnerabilities* Demonstrate the automation of application binary analysis for iOS and Android using MobSF* Set up a Burp Suite and use it for web app testing* Identify UART and JTAG pinouts, solder headers, and hardware debugging* Get solutions to common wireless protocols* Explore the mobile security and firmware best practices* Master various advanced IoT exploitation techniques and security automationIn DetailIoT is an upcoming trend in the IT industry today; there are a lot of IoT devices on the market, but there is a minimal understanding of how to safeguard them. If you are a security enthusiast or pentester, this book will help you understand how to exploit and secure IoT devices.This book follows a recipe-based approach, giving you practical experience in securing upcoming smart devices. It starts with practical recipes on how to analyze IoT device architectures and identify vulnerabilities. Then, it focuses on enhancing your pentesting skill set, teaching you how to exploit a vulnerable IoT device, along with identifying vulnerabilities in IoT device firmware. Next, this book teaches you how to secure embedded devices and exploit smart devices with hardware techniques. Moving forward, this book reveals advanced hardware pentesting techniques, along with software-defined, radio-based IoT pentesting with Zigbee and Z-Wave. Finally, this book also covers how to use new and unique pentesting techniques for different IoT devices, along with smart devices connected to the cloud.By the end of this book, you will have a fair understanding of how to use different pentesting techniques to exploit and secure various IoT devices.Style and approachThis recipe-based book will teach you how to use advanced IoT exploitation and security automation.

Network Vulnerability Assessment - Sagar Rahalkar 2018-08-31

Being able to identify security loopholes has become critical to many businesses. That's where learning network security assessment becomes very important. This book will not only show you how to find out the system vulnerabilities but also help you build a network security threat model.

Penetration Testing For Dummies - Robert Shimonski 2020-03-27

Target, test, analyze, and report on security vulnerabilities with pen testing Pen Testing is necessary for companies looking to target, test, analyze, and patch the security vulnerabilities from hackers attempting to break into and compromise their organizations data. It takes a person with hacking skills to look for the weaknesses that make an organization susceptible to hacking. Pen Testing For Dummies aims to equip IT enthusiasts at various levels with the basic knowledge of pen testing. It is the go-to book for those who have some IT experience but desire more knowledge of how to gather intelligence on a target, learn the steps for mapping out a test, and discover best practices for analyzing, solving, and reporting on vulnerabilities. The different phases of a pen test from pre-engagement to completion Threat modeling and understanding risk When to apply vulnerability management vs penetration testing Ways to keep your pen testing skills sharp, relevant, and at the top of the game Get ready to gather intelligence, discover the steps for mapping out tests, and analyze and report results!

Practical Internet of Things Security - Brian Russell 2018-11-30

A practical, indispensable security guide that will navigate you through the complex realm of securely building and deploying systems in our

IoT-connected world Key Features Learn best practices to secure your data from the device to the cloud Use systems security engineering and privacy-by-design principles to design a secure IoT ecosystem A practical guide that will help you design and implement cyber security strategies for your organization Book Description With the advent of the Internet of Things (IoT), businesses have to defend against new types of threat. The business ecosystem now includes the cloud computing infrastructure, mobile and fixed endpoints that open up new attack surfaces. It therefore becomes critical to ensure that cybersecurity threats are contained to a minimum when implementing new IoT services and solutions. This book shows you how to implement cybersecurity solutions, IoT design best practices, and risk mitigation methodologies to address device and infrastructure threats to IoT solutions. In this second edition, you will go through some typical and unique vulnerabilities seen within various layers of the IoT technology stack and also learn new ways in which IT and physical threats interact. You will then explore the different engineering approaches a developer/manufacturer might take to securely design and deploy IoT devices. Furthermore, you will securely develop your own custom additions for an enterprise IoT implementation. You will also be provided with actionable guidance through setting up a cryptographic infrastructure for your IoT implementations. You will then be guided on the selection and configuration of Identity and Access Management solutions for an IoT implementation. In conclusion, you will explore cloud security architectures and security best practices for operating and managing cross-organizational, multi-domain IoT deployments. What you will learn Discuss the need for separate security requirements and apply security engineering principles on IoT devices Master the operational aspects of planning, deploying, managing, monitoring, and detecting the remediation and disposal of IoT systems Use Blockchain solutions for IoT authenticity and integrity Explore additional privacy features emerging in the IoT industry, such as anonymity, tracking issues, and countermeasures Design a fog computing architecture to support IoT edge analytics Detect and respond to IoT security incidents and compromises Who this book is for This book targets IT Security Professionals and Security Engineers (including pentesters, security architects and ethical hackers) who would like to ensure the security of their organization's data when connected through the IoT. Business analysts and managers will also find this book useful.

Practical IoT Hacking - Fotios Chantzis 2021-03-23

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

Advanced Infrastructure Penetration Testing - Chiheb Chebbi 2018-02-26

A highly detailed guide to performing powerful attack vectors in many hands-on scenarios and defending significant security flaws in your

company's infrastructure Key Features Advanced exploitation techniques to breach modern operating systems and complex network devices Learn about Docker breakouts, Active Directory delegation, and CRON jobs Practical use cases to deliver an intelligent endpoint-protected system Book Description It has always been difficult to gain hands-on experience and a comprehensive understanding of advanced penetration testing techniques and vulnerability assessment and management. This book will be your one-stop solution to compromising complex network devices and modern operating systems. This book provides you with advanced penetration testing techniques that will help you exploit databases, web and application servers, switches or routers, Docker, VLAN, VoIP, and VPN. With this book, you will explore exploitation abilities such as offensive PowerShell tools and techniques, CI servers, database exploitation, Active Directory delegation, kernel exploits, cron jobs, VLAN hopping, and Docker breakouts. Moving on, this book will not only walk you through managing vulnerabilities, but will also teach you how to ensure endpoint protection. Toward the end of this book, you will also discover post-exploitation tips, tools, and methodologies to help your organization build an intelligent security system. By the end of this book, you will have mastered the skills and methodologies needed to breach infrastructures and provide complete endpoint protection for your system. What you will learn Exposure to advanced infrastructure penetration testing techniques and methodologies Gain hands-on experience of penetration testing in Linux system vulnerabilities and memory exploitation Understand what it takes to break into enterprise networks Learn to secure the configuration management environment and continuous delivery pipeline Gain an understanding of how to exploit networks and IoT devices Discover real-world, post-exploitation techniques and countermeasures Who this book is for If you are a system administrator, SOC analyst, penetration tester, or a network engineer and want to take your penetration testing skills and security knowledge to the next level, then this book is for you. Some prior experience with penetration testing tools and knowledge of Linux and Windows command-line syntax is beneficial.

Penetration Testing Azure for Ethical Hackers - David Okeyode 2021-11-25

Simulate real-world attacks using tactics, techniques, and procedures that adversaries use during cloud breaches Key FeaturesUnderstand the different Azure attack techniques and methodologies used by hackersFind out how you can ensure end-to-end cybersecurity in the Azure ecosystemDiscover various tools and techniques to perform successful penetration tests on your Azure infrastructureBook Description “If you're looking for this book, you need it.” — 5* Amazon Review Curious about how safe Azure really is? Put your knowledge to work with this practical guide to penetration testing. This book offers a no-faff, hands-on approach to exploring Azure penetration testing methodologies, which will get up and running in no time with the help of real-world examples, scripts, and ready-to-use source code. As you learn about the Microsoft Azure platform and understand how hackers can attack resources hosted in the Azure cloud, you'll find out how to protect your environment by identifying vulnerabilities, along with extending your pentesting tools and capabilities. First, you'll be taken through the prerequisites for pentesting Azure and shown how to set up a pentesting lab. You'll then simulate attacks on Azure assets such as web applications and virtual machines from anonymous and authenticated perspectives. In the later chapters, you'll learn about the opportunities for privilege escalation in Azure tenants and ways in which an attacker can create persistent access to an environment. By the end of this book, you'll be able to leverage your ethical hacking skills to identify and implement different tools and techniques to perform successful penetration tests on your own Azure infrastructure. What you will learnIdentify how administrators misconfigure Azure services, leaving them open to exploitationUnderstand how to detect cloud infrastructure, service, and application misconfigurationsExplore processes and techniques for exploiting common Azure security issuesUse on-premises networks to pivot and escalate access within AzureDiagnose gaps and weaknesses in Azure security implementationsUnderstand how attackers can

escalate privileges in Azure ADWho this book is for This book is for new and experienced infosec enthusiasts who want to learn how to simulate real-world Azure attacks using tactics, techniques, and procedures (TTPs) that adversaries use in cloud breaches. Any technology professional working with the Azure platform (including Azure administrators, developers, and DevOps engineers) interested in learning how attackers exploit vulnerabilities in Azure hosted infrastructure, applications, and services will find this book useful.

Demystifying Internet of Things Security - Sunil Cheruvu 2019-08-13

Break down the misconceptions of the Internet of Things by examining the different security building blocks available in Intel Architecture (IA) based IoT platforms. This open access book reviews the threat pyramid, secure boot, chain of trust, and the SW stack leading up to defense-in-depth. The IoT presents unique challenges in implementing security and Intel has both CPU and Isolated Security Engine capabilities to simplify it. This book explores the challenges to secure these devices to make them immune to different threats originating from within and outside the network. The requirements and robustness rules to protect the assets vary greatly and there is no single blanket solution approach to implement security. Demystifying Internet of Things Security provides clarity to industry professionals and provides and overview of different security solutions What You'll Learn Secure devices, immunizing them against different threats originating from inside and outside the networkGather an overview of the different security building blocks available in Intel Architecture (IA) based IoT platformsUnderstand the threat pyramid, secure boot, chain of trust, and the software stack leading up to defense-in-depth Who This Book Is For Strategists, developers, architects, and managers in the embedded and Internet of Things (IoT) space trying to understand and implement the security in the IoT devices/platforms.

Learning Pentesting for Android Devices - Aditya Gupta 2014-03-26

This is an easy-to-follow guide, full of hands-on and real-world examples of applications. Each of the vulnerabilities discussed in the book is accompanied with the practical approach to the vulnerability, and the underlying security issue. This book is intended for all those who are looking to get started in Android security or Android application penetration testing. You don’t need to be an Android developer to learn from this book, but it is highly recommended that developers have some experience in order to learn how to create secure applications for Android.

CompTIA PenTest+ Study Guide - Mike Chapple 2018-10-15

World-class preparation for the new PenTest+ exam The CompTIA PenTest+ Study Guide: Exam PT0-001 offers comprehensive preparation for the newest intermediate cybersecurity certification exam. With expert coverage of Exam PT0-001 objectives, this book is your ideal companion throughout all stages of study; whether you’re just embarking on your certification journey or finalizing preparations for the big day, this invaluable resource helps you solidify your understanding of essential skills and concepts. Access to the Sybex online learning environment allows you to study anytime, anywhere with electronic flashcards, a searchable glossary, and more, while hundreds of practice exam questions help you step up your preparations and avoid surprises on exam day. The CompTIA PenTest+ certification validates your skills and knowledge surrounding second-generation penetration testing, vulnerability assessment, and vulnerability management on a variety of systems and devices, making it the latest go-to qualification in an increasingly mobile world. This book contains everything you need to prepare; identify what you already know, learn what you don’t know, and face the exam with full confidence! Perform security assessments on desktops and mobile devices, as well as cloud, IoT, industrial and embedded systems Identify security weaknesses and manage system vulnerabilities Ensure that existing cybersecurity practices, configurations, and policies conform with current best practices Simulate cyberattacks to pinpoint security weaknesses in operating systems, networks, and applications As our information technology advances, so do the threats against it. It’s an arms race for complexity and sophistication, and the expansion of networked devices and the

Internet of Things has integrated cybersecurity into nearly every aspect of our lives. The PenTest+ certification equips you with the skills you need to identify potential problems—and fix them—and the CompTIA PenTest+ Study Guide: Exam PT0-001 is the central component of a complete preparation plan.

Hands-On Penetration Testing with Kali NetHunter - Glen D. Singh 2019-02-28

Convert Android to a powerful pentesting platform. Key FeaturesGet up and running with Kali Linux NetHunter Connect your Android device and gain full control over Windows, OSX, or Linux devices Crack Wi-Fi passwords and gain access to devices connected over the same network collecting intellectual dataBook Description Kali NetHunter is a version of the popular and powerful Kali Linux pentesting platform, designed to be installed on mobile devices. Hands-On Penetration Testing with Kali NetHunter will teach you the components of NetHunter and how to install the software. You'll also learn about the different tools included and how to optimize and use a package, obtain desired results, perform tests, and make your environment more secure. Starting with an introduction to Kali NetHunter, you will delve into different phases of the pentesting process. This book will show you how to build your penetration testing environment and set up your lab. You will gain insight into gathering intellectual data, exploiting vulnerable areas, and gaining control over target systems. As you progress through the book, you will explore the NetHunter tools available for exploiting wired and wireless devices. You will work through new ways to deploy existing tools designed to reduce the chances of detection. In the concluding chapters, you will discover tips and best practices for integrating security hardening into your Android ecosystem. By the end of this book, you will have learned to successfully use a mobile penetration testing device based on Kali NetHunter and Android to accomplish the same tasks you would traditionally, but in a smaller and more mobile form factor. What you will learnChoose and configure a hardware device to use Kali NetHunter Use various tools during pentests Understand NetHunter suite components Discover tips to effectively use a compact mobile platform Create your own Kali NetHunter-enabled device and configure it for optimal results Learn to scan and gather information from a target Explore hardware adapters for testing and auditing wireless networks and Bluetooth devicesWho this book is for Hands-On Penetration Testing with Kali NetHunter is for pentesters, ethical hackers, and security professionals who want to learn to use Kali NetHunter for complete mobile penetration testing and are interested in venturing into the mobile domain. Some prior understanding of networking assessment and Kali Linux will be helpful.

Learning Kali Linux - Ric Messier 2018-07-17

With more than 600 security tools in its arsenal, the Kali Linux distribution can be overwhelming. Experienced and aspiring security professionals alike may find it challenging to select the most appropriate tool for conducting a given test. This practical book covers Kali's expansive security capabilities and helps you identify the tools you need to conduct a wide range of security tests and penetration tests. You'll also explore the vulnerabilities that make those tests necessary. Author Ric Messier takes you through the foundations of Kali Linux and explains methods for conducting tests on networks, web applications, wireless security, password vulnerability, and more. You'll discover different techniques for extending Kali tools and creating your own toolset. Learn tools for stress testing network stacks and applications Perform network reconnaissance to determine what's available to attackers Execute penetration tests using automated exploit tools such as Metasploit Use cracking tools to see if passwords meet complexity requirements Test wireless capabilities by injecting frames and cracking passwords Assess web application vulnerabilities with automated or proxy-based tools Create advanced attack techniques by extending Kali tools or developing your own Use Kali Linux to generate reports once testing is complete

CompTIA PenTest+ Certification For Dummies - Glen E. Clarke 2020-10-28

Prepare for the CompTIA PenTest+ certification CompTIA's PenTest+ Certification is an essential certification to building a successful penetration testing career. Test takers must pass an 85-question exam to be certified, and this book—plus the online test bank—will help you

reach your certification goal. CompTIA PenTest+ Certification For Dummies includes a map to the exam's objectives and helps you get up to speed on planning and scoping, information gathering and vulnerability identification, attacks and exploits, penetration testing tools and reporting, and communication skills. Pass the PenTest+ Certification exam and grow as a Pen Testing professional Learn to demonstrate hands-on ability to Pen Test Practice with hundreds of study questions in a free online test bank Find test-taking advice and a review of the types of questions you'll see on the exam Get ready to acquire all the knowledge you need to pass the PenTest+ exam and start your career in this growing field in cybersecurity!

Practical Internet of Things Security - Brian Russell 2016-06-29

A practical, indispensable security guide that will navigate you through the complex realm of securely building and deploying systems in our IoT-connected world About This Book Learn to design and implement cyber security strategies for your organization Learn to protect cyber-physical systems and utilize forensic data analysis to beat vulnerabilities in your IoT ecosystem Learn best practices to secure your data from device to the cloud Gain insight into privacy-enhancing techniques and technologies Who This Book Is For This book targets IT Security Professionals and Security Engineers (including pentesters, security architects and ethical hackers) who would like to ensure security of their organization's data when connected through the IoT. Business analysts and managers will also find it useful. What You Will Learn Learn how to break down cross-industry barriers by adopting the best practices for IoT deployments Build a rock-solid security program for IoT that is cost-effective and easy to maintain Demystify complex topics such as cryptography, privacy, and penetration testing to improve your security posture See how the selection of individual components can affect the security posture of the entire system Use Systems Security Engineering and Privacy-by-design principles to design a secure IoT ecosystem Get to know how to leverage the burdgening cloud-based systems that will support the IoT into the future. In Detail With the advent of Intenret of Things (IoT), businesses will be faced with defending against new types of threats. The business ecosystem now includes cloud computing infrastructure, mobile and fixed endpoints that open up new attack surfaces, a desire to share information with many stakeholders and a need to take action quickly based on large quantities of collected data. . It therefore becomes critical to ensure that cyber security threats are contained to a minimum when implementing new IoT services and solutions. . The interconnectivity of people, devices, and companies raises stakes to a new level as computing and action become even more mobile, everything becomes connected to the cloud, and infrastructure is strained to securely manage the billions of devices that will connect us all to the IoT. This book shows you how to implement cyber-security solutions, IoT design best practices and risk mitigation methodologies to address device and infrastructure threats to IoT solutions. This book will take readers on a journey that begins with understanding the IoT and how it can be applied in various industries, goes on to describe the security challenges associated with the IoT, and then provides a set of guidelines to architect and deploy a secure IoT in your Enterprise. The book will showcase how the IoT is implemented in early-adopting industries and describe how lessons can be learned and shared across diverse industries to support a secure IoT. Style and approach This book aims to educate readers on key areas in IoT security. It walks readers through engaging with security challenges and then provides answers on how to successfully manage IoT security and build a safe infrastructure for smart devices. After reading this book, you will understand the true potential of tools and solutions in order to build real-time security intelligence on IoT networks.

Network Scanning Cookbook - Sairam Jetty 2018-09-29

Discover network vulnerabilities and threats to design effective network security strategies Key FeaturesPlunge into scanning techniques using the most popular toolsEffective vulnerability assessment techniques to safeguard network infrastructureExplore the Nmap Scripting Engine (NSE) and the features used for port and vulnerability scanningBook Description Network scanning is a discipline of network security that

identifies active hosts on networks and determining whether there are any vulnerabilities that could be exploited. Nessus and Nmap are among the top tools that enable you to scan your network for vulnerabilities and open ports, which can be used as back doors into a network. Network Scanning Cookbook contains recipes for configuring these tools in your infrastructure that get you started with scanning ports, services, and devices in your network. As you progress through the chapters, you will learn how to carry out various key scanning tasks, such as firewall detection, OS detection, and access management, and will look at problems related to vulnerability scanning and exploitation in the network. The book also contains recipes for assessing remote services and the security risks that they bring to a network infrastructure. By the end of the book, you will be familiar with industry-grade tools for network scanning, and techniques for vulnerability scanning and network protection. What you will learnInstall and configure Nmap and Nessus in your network infrastructurePerform host discovery to identify network devicesExplore best practices for vulnerability scanning and risk assessmentUnderstand network enumeration with Nessus and NmapCarry out configuration audit using Nessus for various platformsWrite custom Nessus and Nmap scripts on your ownWho this book is for If you’re a network engineer or information security professional wanting to protect your networks and perform advanced scanning and remediation for your network infrastructure, this book is for you.

Security and Privacy Issues in IoT Devices and Sensor Networks - Sudhir Kumar Sharma 2020-10-15

Security and Privacy Issues in IoT Devices and Sensor Networks investigates security breach issues in IoT and sensor networks, exploring various solutions. The book follows a two-fold approach, first focusing on the fundamentals and theory surrounding sensor networks and IoT security. It then explores practical solutions that can be implemented to develop security for these elements, providing case studies to enhance understanding. Machine learning techniques are covered, as well as other security paradigms, such as cloud security and cryptocurrency technologies. The book highlights how these techniques can be applied to identify attacks and vulnerabilities, preserve privacy, and enhance data security. This in-depth reference is ideal for industry professionals dealing with WSN and IoT systems who want to enhance the security of these systems. Additionally, researchers, material developers and technology specialists dealing with the multifarious aspects of data privacy and security enhancement will benefit from the book's comprehensive information. Provides insights into the latest research trends and theory in the field of sensor networks and IoT security Presents machine learning-based solutions for data security enhancement Discusses the challenges to implement various security techniques Informs on how analytics can be used in security and privacy

Ethical Hacking and Penetration Testing Guide - Rafay Baloch 2017-09-29

Requiring no prior hacking experience, Ethical Hacking and Penetration Testing Guide supplies a complete introduction to the steps required to complete a penetration test, or ethical hack, from beginning to end. You will learn how to properly utilize and interpret the results of modern-day hacking tools, which are required to complete a penetration test. The book covers a wide range of tools, including Backtrack Linux, Google reconnaissance, MetaGooFil, dig, Nmap, Nessus, Metasploit, Fast Track Autopwn, Netcat, and Hacker Defender rootkit. Supplying a simple and clean explanation of how to effectively utilize these tools, it details a four-step methodology for conducting an effective penetration test or hack.Providing an accessible introduction to penetration testing and hacking, the book supplies you with a fundamental understanding of offensive security. After completing the book you will be prepared to take on in-depth and advanced topics in hacking and penetration testing. The book walks you through each of the steps and tools in a structured, orderly manner allowing you to understand how the output from each tool can be fully utilized in the subsequent phases of the penetration test. This process will allow you to clearly see how the various tools and phases relate to each other. An ideal resource for those who want to learn about ethical hacking but dont know where

to start, this book will help take your hacking skills to the next level. The topics described in this book comply with international standards and with what is being taught in international certifications.

IoT Penetration Testing Cookbook - Aaron Guzman 2017-11-29

Over 80 recipes to master IoT security techniques. About This Book Identify vulnerabilities in IoT device architectures and firmware using software and hardware pentesting techniques Understand radio communication analysis with concepts such as sniffing the air and capturing radio signals A recipe based guide that will teach you to pentest new and unique set of IoT devices. Who This Book Is For This book targets IoT developers, IoT enthusiasts, pentesters, and security professionals who are interested in learning about IoT security. Prior knowledge of basic pentesting would be beneficial. What You Will Learn Set up an IoT pentesting lab Explore various threat modeling concepts Exhibit the ability to analyze and exploit firmware vulnerabilities Demonstrate the automation of application binary analysis for iOS and Android using MobSF Set up a Burp Suite and use it for web app testing Identify UART and JTAG pinouts, solder headers, and hardware debugging Get solutions to common wireless protocols Explore the mobile security and firmware best practices Master various advanced IoT exploitation techniques and security automation In Detail IoT is an upcoming trend in the IT industry today; there are a lot of IoT devices on the market, but there is a minimal understanding of how to safeguard them. If you are a security enthusiast or pentester, this book will help you understand how to exploit and secure IoT devices. This book follows a recipe-based approach, giving you practical experience in securing upcoming smart devices. It starts with practical recipes on how to analyze IoT device architectures and identify vulnerabilities. Then, it focuses on enhancing your pentesting skill set, teaching you how to exploit a vulnerable IoT device, along with identifying vulnerabilities in IoT device firmware. Next, this book teaches you how to secure embedded devices and exploit smart devices with hardware techniques. Moving forward, this book reveals advanced hardware pentesting techniques, along with software-defined, radio-based IoT pentesting with Zigbee and Z-Wave. Finally, this book also covers how to use new and unique pentesting techniques for different IoT devices, along with smart devices connected to the cloud. By the end of this book, you will have a fair understanding of how to use different pentesting techniques to exploit and secure various IoT devices. Style and approach This recipe-based book will teach you how to use advanced IoT exploitation and security automation.

Mobile Application Penetration Testing - Vijay Kumar Velu 2016-03-11

Explore real-world threat scenarios, attacks on mobile applications, and ways to counter them About This Book Gain insights into the current threat landscape of mobile applications in particular Explore the different options that are available on mobile platforms and prevent circumventions made by attackers This is a step-by-step guide to setting up your own mobile penetration testing environment Who This Book Is For If you are a mobile application evangelist, mobile application developer, information security practitioner, penetration tester on infrastructure web applications, an application security professional, or someone who wants to learn mobile application security as a career, then this book is for you. This book will provide you with all the skills you need to get started with Android and iOS pen-testing. What You Will Learn Gain an in-depth understanding of Android and iOS architecture and the latest changes Discover how to work with different tool suites to assess any application Develop different strategies and techniques to connect to a mobile device Create a foundation for mobile application security principles Grasp techniques to attack different components of an Android device and the different functionalities of an iOS device Get to know secure development strategies for both iOS and Android applications Gain an understanding of threat modeling mobile applications Get an in-depth understanding of both Android and iOS implementation vulnerabilities and how to provide counter-measures while developing a mobile app In Detail Mobile security has come a long way over the last few years. It has transitioned from "should it be done?" to "it must

be done!"Alongside the growing number of devises and applications, there is also a growth in the volume of Personally identifiable information (PII), Financial Data, and much more. This data needs to be secured. This is why Pen-testing is so important to modern application developers. You need to know how to secure user data, and find vulnerabilities and loopholes in your application that might lead to security breaches. This book gives you the necessary skills to security test your mobile applications as a beginner, developer, or security practitioner. You'll start by discovering the internal components of an Android and an iOS application. Moving ahead, you'll understand the inter-process working of these applications. Then you'll set up a test environment for this application using various tools to identify the loopholes and vulnerabilities in the structure of the applications. Finally, after collecting all information about these security loop holes, we'll start securing our applications from these threats. Style and approach This is an easy-to-follow guide full of hands-on examples of real-world attack simulations. Each topic is explained in context with respect to testing, and for the more inquisitive, there are more details on the concepts and techniques used for different platforms.

Technical Guide to Information Security Testing and Assessment - Karen Scarfone 2009-05-01

An info. security assessment (ISA) is the process of determining how effectively an entity being assessed (e.g., host, system, network, procedure, person) meets specific security objectives. This is a guide to the basic tech. aspects of conducting ISA. It presents tech. testing and examination methods and techniques that an org. might use as part of an ISA, and offers insights to assessors on their execution and the potential impact they may have on systems and networks. For an ISA to be successful, elements beyond the execution of testing and examination must support the tech. process. Suggestions for these activities ¿ including a robust planning process, root cause analysis, and tailored reporting ¿ are also presented in this guide. Illus.

Hacking Internet of Things - Shashank Pandey 2018-03-05

According to IHS Markit, the number of IoT (Internet of Things) devices will grow to 30.7 billion in 2020, and to 75.4 billion by 2025! IDC Forecasts Worldwide spending on the IoT to reach $772 Billion in 2018! Whether it is connected automobiles, fitness watches, smart coffee machines, smart locks or even medical equipment such as insulin pumps, IoT is becoming all-pervasive. In the future, there will hardly be any aspect of our lives that IoT will not touch one way or the other. Bluetooth Low Energy (BLE) is one of the popular radio protocols used by many IoT devices. As the footprint of IoT devices has increased, so have the attacks on these devices by cyber criminals. Given our increasing dependency on IoT and the increasing number of cyber attacks on these devices, it's intuitive that their security will have a huge implication on safety and security of the digital society that we are a part of! If you wish to acquire hands-on (BLE) IoT penetration testing and securing skills and be a white hat cyber security superstar, this book is for you!

Metasploit Penetration Testing Cookbook - Abhinav Singh 2012-06-22

Over 80 recipes to master the most widely used penetration testing framework.

Pentesting Industrial Control Systems - Paul Smith 2021-12-09

Learn how to defend your ICS in practice, from lab setup and intel gathering to working with SCADA Key FeaturesBecome well-versed with offensive ways of defending your industrial control systemsLearn about industrial network protocols, threat hunting, Active Directory compromises, SQL injection, and much moreBuild offensive and defensive skills to combat industrial cyber threatsBook Description The industrial cybersecurity domain has grown significantly in recent years. To completely secure critical infrastructure, red teams must be employed to continuously test and exploit the security integrity of a company's people, processes, and products. This is a unique pentesting book, which takes a different approach by helping you gain hands-on experience with equipment that you'll come across in the field. This will enable you to understand how industrial equipment interacts and operates within an operational environment. You'll start by getting to grips with the basics of

industrial processes, and then see how to create and break the process, along with gathering open-source intel to create a threat landscape for your potential customer. As you advance, you'll find out how to install and utilize offensive techniques used by professional hackers. Throughout the book, you'll explore industrial equipment, port and service discovery, pivoting, and much more, before finally launching attacks against systems in an industrial network. By the end of this penetration testing book, you'll not only understand how to analyze and navigate the intricacies of an industrial control system (ICS), but you'll also have developed essential offensive and defensive skills to proactively protect industrial networks from modern cyberattacks. What you will learnSet up a starter-kit ICS lab with both physical and virtual equipmentPerform open source intel-gathering pre-engagement to help map your attack landscapeGet to grips with the Standard Operating Procedures (SOPs) for penetration testing on industrial equipmentUnderstand the principles of traffic spanning and the importance of listening to customer networksGain fundamental knowledge of ICS communicationConnect physical operational technology to engineering workstations and supervisory control and data acquisition (SCADA) softwareGet hands-on with directory scanning tools to map web-based SCADA solutionsWho this book is for If you are an ethical hacker, penetration tester, automation engineer, or IT security professional looking to maintain and secure industrial networks from adversaries, this book is for you. A basic understanding of cybersecurity and recent cyber events will help you get the most out of this book.

Kali Linux Web Penetration Testing Cookbook - Gilberto Nájera-Gutiérrez 2016-02-29

Over 80 recipes on how to identify, exploit, and test web application security with Kali Linux 2 About This Book Familiarize yourself with the most common web vulnerabilities a web application faces, and understand how attackers take advantage of them Set up a penetration testing lab to conduct a preliminary assessment of attack surfaces and run exploits Learn how to prevent vulnerabilities in web applications before an attacker can make the most of it Who This Book Is For This book is for IT professionals, web developers, security enthusiasts, and security professionals who want an accessible reference on how to find, exploit, and prevent security vulnerabilities in web applications. You should know the basics of operating a Linux environment and have some exposure to security technologies and tools. What You Will Learn Set up a penetration testing laboratory in a secure way Find out what information is useful to gather when performing penetration tests and where to look for it Use crawlers and spiders to investigate an entire website in minutes Discover security vulnerabilities in web applications in the web browser and using command-line tools Improve your testing efficiency with the use of automated vulnerability scanners Exploit vulnerabilities that require a complex setup, run custom-made exploits, and prepare for extraordinary scenarios Set up Man in the Middle attacks and use them to identify and exploit security flaws within the communication between users and the web server Create a malicious site that will find and exploit vulnerabilities in the user's web browser Repair the most common web vulnerabilities and understand how to prevent them becoming a threat to a site's security In Detail Web applications are a huge point of attack for malicious hackers and a critical area for security professionals and penetration testers to lock down and secure. Kali Linux is a Linux-based penetration testing platform and operating system that provides a huge array of testing tools, many of which can be used specifically to execute web penetration testing. This book will teach you, in the form step-by-step recipes, how to detect a wide array of vulnerabilities, exploit them to analyze their consequences, and ultimately buffer attackable surfaces so applications are more secure, for you and your users. Starting from the setup of a testing laboratory, this book will give you the skills you need to cover every stage of a penetration test: from gathering information about the system and the application to identifying vulnerabilities through manual testing and the use of vulnerability scanners to both basic and advanced exploitation techniques that may lead to a full system compromise. Finally, we will put this into the context of OWASP and the top 10

web application vulnerabilities you are most likely to encounter, equipping you with the ability to combat them effectively. By the end of the book, you will have the required skills to identify, exploit, and prevent web application vulnerabilities. Style and approach Taking a recipe-based approach to web security, this book has been designed to cover each stage of a penetration test, with descriptions on how tools work and why certain programming or configuration practices can become security vulnerabilities that may put a whole system, or network, at risk. Each topic is presented as a sequence of tasks and contains a proper explanation of why each task is performed and what it accomplishes.