

Openwrt Development Guide

Presents an introduction to the open-source electronics prototyping platform.

The following list describes what you can get from this book: Information that lets you get set up to develop using the Yocto Project. Information to help developers who are new to the open source environment and to the distributed revision control system Git, which the Yocto Project uses. An understanding of common end-to-end development models and tasks. Information about common development tasks generally used during image development for embedded devices. Information on using the Yocto Project integration of the QuickEMUlator (QEMU), which lets you simulate running on hardware an image you have built using the OpenEmbedded build system. Many references to other sources of related information.

BPF and related observability tools give software professionals unprecedented visibility into software, helping them analyze operating system and application performance, troubleshoot code, and strengthen security. BPF Performance Tools: Linux System and Application Observability is the industry's most comprehensive guide to using these tools for observability. Brendan Gregg, author of the industry's definitive guide to system performance, introduces powerful new methods and tools for doing

analysis that leads to more robust, reliable, and safer code. This authoritative guide: Explores a wide spectrum of software and hardware targets

Thoroughly covers open source BPF tools from the Linux Foundation iovisor project's bcc and bpftrace repositories Summarizes performance engineering and kernel internals you need to understand

Provides and discusses 150+ bpftrace tools, including 80 written specifically for this book: tools you can run as-is, without programming — or

customize and develop further, using diverse interfaces and the bpftrace front-end You'll learn how to use BPF (eBPF) tracing tools to analyze

CPUs, memory, disks, file systems, networking, languages, applications, containers, hypervisors, security, and the Linux kernel. You'll move from

basic to advanced tools and techniques, producing new metrics, stack traces, custom latency

histograms, and more. It's like having a superpower: with Gregg's guidance and tools, you can analyze virtually everything that impacts system

performance, so you can improve virtually any Linux operating system or application.

Master building and integrating secure private networks using OpenVPN About This Book Discover how to configure and set up a secure OpenVPN

Enhance user experience by using multiple authentication methods Delve into better reporting, monitoring, logging, and control with OpenVPN Who

This Book Is For If you are familiar with TCP/IP networking and general system administration, then this book is ideal for you. Some knowledge and understanding of core elements and applications related to Virtual Private Networking is assumed.

What You Will Learn

- Identify different VPN protocols (IPSec, PPTP, OpenVPN)
- Build your own PKI and manage certificates
- Deploy your VPN on various devices like PCs, mobile phones, tablets, and more
- Differentiate between the routed and bridged network
- Enhance your VPN with monitoring and logging
- Authenticate against third-party databases like LDAP or the Unix password file
- Troubleshoot an OpenVPN setup that is not performing correctly

In Detail

Security on the internet is increasingly vital to both businesses and individuals. Encrypting network traffic using Virtual Private Networks is one method to enhance security. The internet, corporate, and “free internet” networks grow more hostile every day. OpenVPN, the most widely used open source VPN package, allows you to create a secure network across these systems, keeping your private data secure. The main advantage of using OpenVPN is its portability, which allows it to be embedded into several systems. This book is an advanced guide that will help you build secure Virtual Private Networks using OpenVPN. You will begin your journey with an exploration of OpenVPN, while discussing its modes of operation, its clients, its

secret keys, and their format types. You will explore PKI: its setting up and working, PAM authentication, and MTU troubleshooting. Next, client-server mode is discussed, the most commonly used deployment model, and you will learn about the two modes of operation using "tun" and "tap" devices. The book then progresses to more advanced concepts, such as deployment scenarios in tun devices which will include integration with back-end authentication, and securing your OpenVPN server using iptables, scripting, plugins, and using OpenVPN on mobile devices and networks. Finally, you will discover the strengths and weaknesses of the current OpenVPN implementation, understand the future directions of OpenVPN, and delve into the troubleshooting techniques for OpenVPN. By the end of the book, you will be able to build secure private networks across the internet and hostile networks with confidence. Style and approach An easy-to-follow yet comprehensive guide to building secure Virtual Private Networks using OpenVPN. A progressively complex VPN design is developed with the help of examples. More advanced topics are covered in each chapter, with subjects grouped according to their complexity, as well as their utility.

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 UART and 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, manufacturers 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 Learn

- Perform 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 binaries
- Sniff, 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.

Master the techniques needed to build great, efficient embedded devices on Linux

About This Book Discover how to build and configure reliable embedded Linux devices This book has been

updated to include Linux 4.9 and Yocto Project 2.2 (Morty) This comprehensive guide covers the remote update of devices in the field and power management Who This Book Is For If you are an engineer who wishes to understand and use Linux in embedded devices, this book is for you. It is also for Linux developers and system programmers who are familiar with embedded systems and want to learn and program the best in class devices. It is appropriate for students studying embedded techniques, for developers implementing embedded Linux devices, and engineers supporting existing Linux devices. What You Will Learn Evaluate the Board Support Packages offered by most manufacturers of a system on chip or embedded module Use Buildroot and the Yocto Project to create embedded Linux systems quickly and efficiently Update IoT devices in the field without compromising security Reduce the power budget of devices to make batteries last longer Interact with the hardware without having to write kernel device drivers Debug devices remotely using GDB, and see how to measure the performance of the systems using powerful tools such as `perf`, `ftrace`, and `valgrind` Find out how to configure Linux as a real-time operating system In Detail Embedded Linux runs many of the devices we use every day, from smart TVs to WiFi routers, test equipment to industrial controllers - all of them have Linux at their

heart. Linux is a core technology in the implementation of the inter-connected world of the Internet of Things. The comprehensive guide shows you the technologies and techniques required to build Linux into embedded systems. You will begin by learning about the fundamental elements that underpin all embedded Linux projects: the toolchain, the bootloader, the kernel, and the root filesystem. You'll see how to create each of these elements from scratch, and how to automate the process using Buildroot and the Yocto Project. Moving on, you'll find out how to implement an effective storage strategy for flash memory chips, and how to install updates to the device remotely once it is deployed. You'll also get to know the key aspects of writing code for embedded Linux, such as how to access hardware from applications, the implications of writing multi-threaded code, and techniques to manage memory in an efficient way. The final chapters show you how to debug your code, both in applications and in the Linux kernel, and how to profile the system so that you can look out for performance bottlenecks. By the end of the book, you will have a complete overview of the steps required to create a successful embedded Linux system.

Style and approach This book is an easy-to-follow and pragmatic guide with in-depth analysis of the implementation of embedded devices. It follows the life cycle of a project from inception through to

completion, at each stage giving both the theory that underlies the topic and practical step-by-step walkthroughs of an example implementation.

Learn Linux, and take your career to the next level!

Linux Essentials, 2nd Edition provides a solid foundation of knowledge for anyone considering a career in information technology, for anyone new to the Linux operating system, and for anyone who is preparing to sit for the Linux Essentials Exam.

Through this engaging resource, you can access key information in a learning-by-doing style. Hands-on tutorials and end-of-chapter exercises and review questions lead you in both learning and applying new information—information that will help you achieve your goals! With the experience provided in this compelling reference, you can sit down for the Linux Essentials Exam with confidence. An open source operating system, Linux is a UNIX-based platform that is freely updated by developers. The nature of its development means that Linux is a low-cost and secure alternative to other operating systems, and is used in many different IT environments. Passing the Linux Essentials Exam prepares you to apply your knowledge regarding this operating system within the workforce. Access lessons that are organized by task, allowing you to quickly identify the topics you are looking for and navigate the comprehensive information presented by the book Discover the basics of the Linux

operating system, including distributions, types of open source applications, freeware, licensing, operations, navigation, and more Explore command functions, including navigating the command line, turning commands into scripts, and more Identify and create user types, users, and groups Linux Essentials, 2nd Edition is a critical resource for anyone starting a career in IT or anyone new to the Linux operating system.

Build the next generation of connected projects. The Yún is one of the most powerful and flexible hardware development boards in the Arduino range. It combines the ease-of-use of the Arduino platform, with the power of a 400 MHz Atheros AR9331 Wi-Fi system-on-chip (WiSOC) that runs Linux. But if you are not experienced and confident in working with Linux-based operating systems, it may be difficult for you to use the Yún to its full potential. Bob Hammell is the author of popular Arduino learning resources, such as *Connecting Arduino: Programming and Networking with the Ethernet Shield*. In this book, he guides you through all of the Arduino Yún's features and explains how to make use of this unique board. Using interesting and fun examples, in *Arduino Meets Linux: The User's Guide to Arduino Yún Development* you can learn how to: Connect your Arduino Yún to your network, using built-in support for Wi-Fi and Ethernet; Work with OpenWrt-Yun Linux through the command line; Use the Bridge

Library to communicate and share data between both of the Yún's chips; Write Python and shell scripts to automate tasks and use the power of the AR9331 in your Arduino projects; Work with Temboo and third-party APIs to access popular web services; Host your own websites and application programming interfaces (APIs) on the Yún; Use USB devices, such as audio interfaces and gamepads from Microsoft Xbox 360(R) and Sony PlayStation(R) games consoles; Build Arduino projects that act as a keyboard or mouse when you plug your Yún into a PC or Mac; Add voice recognition and speech to your Arduino projects; Download source code, view demo videos, and access extra projects from the book's companion website, ArduinoMeetsLinux.com; And much, much more. Whether you are an experienced Linux developer looking for specific details on using the Arduino Yún or a beginner who has never used Linux before, you can find all of the key information that you need in this book. With the Arduino Yún, you can take your Arduino projects to the next level. This book shows you how.

Benvenuti describes the relationship between the Internet's TCP/IP implementation and the Linux Kernel so that programmers and advanced administrators can modify and fine-tune their network environment.

Maximum PC is the magazine that every computer fanatic, PC gamer or content creator must read. Each and every issue is packed with punishing product

reviews, insightful and innovative how-to stories and the illuminating technical articles that enthusiasts crave. Provides a solid foundation for those considering a career in IT—covers the objectives of the new Linux Essentials Exam 010-160 v1.6 Linux is a secure, reliable, open source alternative to costly operating systems such as Microsoft Windows. As large organizations worldwide continue to add Linux servers, the need for IT professionals skilled in Linux continues to grow. The LPI Linux Essentials Study Guide is a valuable resource for anyone preparing to take the new Linux Essentials Exam—the entry-level certification from The Linux Professional Institute (LPI) which validates knowledge of Linux concepts and applications. Written by recognized experts on Linux and open source technologies, this accessible, user-friendly guide covers desktop skills, the command line, directories and files, networks, scripting, security, users and permissions, and much more. Clear, concise chapters provide numerous hands-on tutorials, real-world examples, color illustrations, and practical end-of-chapter exercises and review questions. An ideal introduction for those new to Linux or considering a career in IT, this guide helps readers: Learn the operation and components of Linux desktops and servers Understand open source software, licensing, and applications Configure networks, security, cloud services, storage, and devices Create users and groups and set permissions and ownership Use the command line and build automation scripts LPI Linux Essentials Study Guide: Exam 010 v1.6 is perfect for anyone beginning a career in IT, newcomers to Linux,

students in computer courses, and system administrators working with other operating systems wanting to learn more about Linux and other open source solutions.

This month: * Command & Conquer * How-To : Python, Establish An OpenVPN Connection, and Put Ubuntu On A Mac. * Graphics : Blender and Inkscape. * Review: Arduino Starter Kit * Security Q&A * What Is: CryptoCurrency * NEW! - Open Source Design plus: Q&A, Linux Labs, Ask The New Guy, Ubuntu Games, and another competition!

If you program in C++ you've been neglected. Test-driven development (TDD) is a modern software development practice that can dramatically reduce the number of defects in systems, produce more maintainable code, and give you the confidence to change your software to meet changing needs. But C++ programmers have been ignored by those promoting TDD--until now. In this book, Jeff Langr gives you hands-on lessons in the challenges and rewards of doing TDD in C++. *Modern C++ Programming With Test-Driven Development*, the only comprehensive treatment on TDD in C++ provides you with everything you need to know about TDD, and the challenges and benefits of implementing it in your C++ systems. Its many detailed code examples take you step-by-step from TDD basics to advanced concepts. As a veteran C++ programmer, you're already writing high-quality code, and you work hard to maintain code quality. It doesn't have to be that hard. In this book, you'll learn: how to use TDD to improve legacy C++ systems how to identify and deal with troublesome system dependencies how to do

dependency injection, which is particularly tricky in C++ how to use testing tools for C++ that aid TDD new C++11 features that facilitate TDD As you grow in TDD mastery, you'll discover how to keep a massive C++ system from becoming a design mess over time, as well as particular C++ trouble spots to avoid. You'll find out how to prevent your tests from being a maintenance burden and how to think in TDD without giving up your hard-won C++ skills. Finally, you'll see how to grow and sustain TDD in your team. Whether you're a complete unit-testing novice or an experienced tester, this book will lead you to mastery of test-driven development in C++. What You Need A C++ compiler running under Windows or Linux, preferably one that supports C++11. Examples presented in the book were built under gcc 4.7.2. Google Mock 1.6 (downloadable for free; it contains Google Test as well) or an alternate C++ unit testing tool. Most examples in the book are written for Google Mock, but it isn't difficult to translate them to your tool of choice. A good programmer's editor or IDE. cmake, preferably. Of course, you can use your own preferred make too. CMakeLists.txt files are provided for each project. Examples provided were built using cmake version 2.8.9. Various freely-available third-party libraries are used as the basis for examples in the book. These include: cURL JsonCpp Boost (filesystem, date_time/gregorian, algorithm, assign) Several examples use the boost headers/libraries. Only one example uses cURL and JsonCpp. Rather than yet another project-based workbook, Arduino: A Technical Reference is a reference and

handbook that thoroughly describes the electrical and performance aspects of an Arduino board and its software. This book brings together in one place all the information you need to get something done with Arduino. It will save you from endless web searches and digging through translations of datasheets or notes in project-based texts to find the information that corresponds to your own particular setup and question. Reference features include pinout diagrams, a discussion of the AVR microcontrollers used with Arduino boards, a look under the hood at the firmware and run-time libraries that make the Arduino unique, and extensive coverage of the various shields and add-on sensors that can be used with an Arduino. One chapter is devoted to creating a new shield from scratch. The book wraps up with detailed descriptions of three different projects: a programmable signal generator, a "smart" thermostat, and a programmable launch sequencer for model rockets. Each project highlights one or more topics that can be applied to other applications. Discover how every solution in some way related to the IoT needs a platform and how to create that platform. This book is about being agile and reducing time to market without breaking the bank. It is about designing something that you can scale incrementally without having to do a lot of rework and potentially disrupting your current state of the work. So the key questions are: what does it take, how long does it take, and how much does it take to build your own IoT platform? Build Your Own IoT Platform answers these questions and provides you with step-by-step guidance on how to build your own

IoT platform. The author bursts the bubble of IoT platforms and highlights what the core of an IoT platform looks like. There are must-haves and there are nice-to-haves; this book will distinguish the two and focus on how to build the must-haves. Building your own IoT platform is not only the biggest cost saver, but also can be a satisfying learning experience, giving you control over your project. What You Will Learn Architect an interconnected system Develop a flexible architecture Create a redundant communication platform Prioritize system requirements with a bottom-up approach Who This Book Is For IoT developers and development teams in small- to medium-sized companies. Basic to intermediate programming skills are required. Build Complete Embedded Linux Systems Quickly and Reliably Developers are increasingly integrating Linux into their embedded systems: It supports virtually all hardware architectures and many peripherals, scales well, offers full source code, and requires no royalties. The Yocto Project makes it much easier to customize Linux for embedded systems. If you're a developer with working knowledge of Linux, Embedded Linux Systems with the Yocto Project™ will help you make the most of it. An indispensable companion to the official documentation, this guide starts by offering a solid grounding in the embedded Linux landscape and the challenges of creating custom distributions for embedded systems. You'll master the Yocto Project's toolbox hands-on, by working through the entire development lifecycle with a variety of real-life examples that you can incorporate into your own projects. Author Rudolf Streif

offers deep insight into Yocto Project’s build system and engine, and addresses advanced topics ranging from board support to compliance management. You’ll learn how to Overcome key challenges of creating custom embedded distributions Jumpstart and iterate OS stack builds with the OpenEmbedded Build System Master build workflow, architecture, and the BitBake Build Engine Quickly troubleshoot build problems Customize new distros with built-in blueprints or from scratch Use BitBake recipes to create new software packages Build kernels, set configurations, and apply patches Support diverse CPU architectures and systems Create Board Support Packages (BSP) for hardware-specific adaptations Provide Application Development Toolkits (ADT) for round-trip development Remotely run and debug applications on actual hardware targets Ensure open-source license compliance Scale team-based projects with Toaster, Build History, Source Mirrors, and Autobuilder

“As an author, editor, and publisher, I never paid much attention to the competition—except in a few cases. This is one of those cases. The UNIX System Administration Handbook is one of the few books we ever measured ourselves against.” —Tim O’Reilly, founder of O’Reilly Media
“This edition is for those whose systems live in the cloud or in virtualized data centers; those whose administrative work largely takes the form of automation and configuration source code; those who collaborate closely with developers, network engineers, compliance officers, and all the other worker bees who inhabit the modern hive.” —Paul Vixie, Internet Hall of Fame-recognized innovator and founder of ISC and Farsight Security
“This book is fun and functional as a desktop

reference. If you use UNIX and Linux systems, you need this book in your short-reach library. It covers a bit of the systems' history but doesn't bloviate. It's just straightforward information delivered in a colorful and memorable fashion." —Jason A. Nunnelley UNIX® and Linux® System Administration Handbook, Fifth Edition, is today's definitive guide to installing, configuring, and maintaining any UNIX or Linux system, including systems that supply core Internet and cloud infrastructure. Updated for new distributions and cloud environments, this comprehensive guide covers best practices for every facet of system administration, including storage management, network design and administration, security, web hosting, automation, configuration management, performance analysis, virtualization, DNS, security, and the management of IT service organizations. The authors—world-class, hands-on technologists—offer indispensable new coverage of cloud platforms, the DevOps philosophy, continuous deployment, containerization, monitoring, and many other essential topics. Whatever your role in running systems and networks built on UNIX or Linux, this conversational, well-written guide will improve your efficiency and help solve your knottiest problems.

Linux Kernel Networking takes you on a guided in-depth tour of the current Linux networking implementation and the theory behind it. Linux kernel networking is a complex topic, so the book won't burden you with topics not directly related to networking. This book will also not overload you with cumbersome line-by-line code walkthroughs not directly related to what you're searching for; you'll find just what you need, with in-depth explanations in each chapter and a quick reference at the end of each chapter. Linux Kernel Networking is the only up-to-date reference guide to understanding how networking is implemented, and it will be indispensable in years to come since so many devices now

use Linux or operating systems based on Linux, like Android, and since Linux is so prevalent in the data center arena, including Linux-based virtualization technologies like Xen and KVM.

Modern cars are more computerized than ever. Infotainment and navigation systems, Wi-Fi, automatic software updates, and other innovations aim to make driving more convenient. But vehicle technologies haven't kept pace with today's more hostile security environment, leaving millions vulnerable to attack. The Car Hacker's Handbook will give you a deeper understanding of the computer systems and embedded software in modern vehicles. It begins by examining vulnerabilities and providing detailed explanations of communications over the CAN bus and between devices and systems. Then, once you have an understanding of a vehicle's communication network, you'll learn how to intercept data and perform specific hacks to track vehicles, unlock doors, glitch engines, flood communication, and more. With a focus on low-cost, open source hacking tools such as Metasploit, Wireshark, Kayak, can-utils, and ChipWhisperer, The Car Hacker's Handbook will show you how to:

- Build an accurate threat model for your vehicle
- Reverse engineer the CAN bus to fake engine signals
- Exploit vulnerabilities in diagnostic and data-logging systems
- Hack the ECU and other firmware and embedded systems
- Feed exploits through infotainment and vehicle-to-vehicle communication systems
- Override factory settings with performance-tuning techniques
- Build physical and virtual test benches to try out exploits safely

If you're curious about automotive security and have the urge to hack a two-ton computer, make The Car Hacker's Handbook your first stop.

Kismet is the industry standard for examining wireless network traffic, and is used by over 250,000 security professionals, wireless networking enthusiasts, and

WarDriving hobbyists. Unlike other wireless networking books that have been published in recent years that geared towards Windows users, Kismet Hacking is geared to those individuals that use the Linux operating system. People who use Linux and want to use wireless tools need to use Kismet. Now with the introduction of Kismet NewCore, they have a book that will answer all their questions about using this great tool. This book continues in the successful vein of books for wireless users such as WarDriving: Drive, Detect Defend.

- *Wardrive Running Kismet from the BackTrack Live CD
- *Build and Integrate Drones with your Kismet Server
- *Map Your Data with GPSTMap, KisMap, WiGLE and GpsDrive

A Linux smart home is about controlling and monitoring devices and information around your home using a standard personal computer, Linux, and its vast array of open source tools. You don't have to be a master programmer to create one. If you like to tinker with Linux, Linux Smart Homes For Dummies will guide you through cool home automation projects that are as much fun to work on as they are to use. Home automation used to be limited to turning on lights and appliances, and maybe controlling your thermostat and lawn sprinkler, from your computer. While you still might not be able to create all the Jetsons' toys, today you can also Build a wireless network Create and set up a weather station Automate your TV and sound system Spy on your pets when you're not home Set up an answering system that knows what to do with calls Increase your home's security If you know how to use Linux and a few basic development tools — Perl, the BASH shell, development libraries, and the GNU C compiler—Linux Smart Homes For Dummies will help you do all these tricks and more. For example, you can Discover the best sources for Linux-based home automation devices Set up a wireless network, create a wireless access point, build a bridge between wired and wireless networks, and route your

own network traffic Build a personal video recorder with MythTV that will record to DVD, or set up a wireless streaming music system Create a smart phone system that takes messages and forwards them to your fax, modem, or answering machine Build a weather station that notifies you of severe weather alerts Control and secure your home automation network, and even check on your house when you're away The bonus CD-ROM includes all kinds of cool open source software for your home automation projects. Linux Smart Homes For Dummies even includes lists of cool gadgets to check out and great ways to automate those boring household chores. A smart home's a happy home! Deep learning networks are getting smaller. Much smaller. The Google Assistant team can detect words with a model just 14 kilobytes in size—small enough to run on a microcontroller. With this practical book you'll enter the field of TinyML, where deep learning and embedded systems combine to make astounding things possible with tiny devices. Pete Warden and Daniel Situnayake explain how you can train models small enough to fit into any environment. Ideal for software and hardware developers who want to build embedded systems using machine learning, this guide walks you through creating a series of TinyML projects, step-by-step. No machine learning or microcontroller experience is necessary. Build a speech recognizer, a camera that detects people, and a magic wand that responds to gestures Work with Arduino and ultra-low-power microcontrollers Learn the essentials of ML and how to train your own models Train models to understand audio, image, and accelerometer data Explore TensorFlow Lite for Microcontrollers, Google's toolkit for TinyML Debug applications and provide safeguards for privacy and security Optimize latency, energy usage, and model and binary size The first edition of a conference is a significant organizational

and scientific gamble. In some cases, these challenges are rewarded by results well above the initial expectations. AFRICOMM 2009, the First International ICST Conference on e-Infrastructure and e-Services for Developing Countries, was clearly one of such cases. The conference aimed at bringing together international researchers, public officers, policy makers and practitioners in ICT to discuss issues and trends, recent research, innovation advances, and on-the-field experiences related to e-Government, e-Governance, e-Infrastructure, and e-Business, with a focus on developing countries. It is in fact widely accepted that ICT Infrastructure and (e-*)services are key drivers for development, well-being, and improved quality of life. This was also highlighted by Kofi Annan, former UN General Secretary, in 2002: "While ICT cannot address all of [Africa's] problems, they can do much to place Africa on a firmer industrial footing. . . and strengthen the continent's human resources, with training that leads to sustainable livelihoods. " AFRICOMM 2009 was organized in three tracks: two of them organized as Research Tracks, on Information and Communication Infrastructures and on e-Services for Developing Countries, and one Policy and Governance Track. Contributions to the first two tracks were selected by peer-review, while the policies session involved key stakeholders in the areas of ICT, development, and policy making who submitted position papers. Participation and selection of papers for the tracks was quite good.

This book presents the proceedings of the Computing Conference 2019, providing a comprehensive collection of chapters focusing on core areas of computing and their real-world applications. Computing is an extremely broad discipline, encompassing a range of specialized fields, each focusing on particular areas of technology and types of application, and the conference offered pioneering researchers, scientists, industrial engineers, and students

from around the globe a platform to share new ideas and development experiences. Providing state-of-the-art intelligent methods and techniques for solving real- world problems, the book inspires further research and technological advances in this important area.

Today, Linux is included with nearly every embedded platform. Embedded developers can take a more modern route and spend more time tuning Linux and taking advantage of open source code to build more robust, feature-rich applications. While Gene Sally does not neglect porting Linux to new hardware, modern embedded hardware is more sophisticated than ever: most systems include the capabilities found on desktop systems. This book is written from the perspective of a user employing technologies and techniques typically reserved for desktop systems. Modern guide for developing embedded Linux systems Shows you how to work with existing Linux embedded system, while still teaching how to port Linux Explains best practices from somebody who has done it before

This soup-to-nuts collection of recipes covers everything you need to know to perform your job as a Linux network administrator, whether you're new to the job or have years of experience. With Linux Networking Cookbook, you'll dive straight into the gnarly hands-on work of building and maintaining a computer network. Running a network doesn't mean you have all the answers. Networking is a complex subject with reams of reference material that's difficult to keep straight, much less remember. If you want a book that lays out the steps for specific tasks, that clearly explains the commands and

configurations, and does not tax your patience with endless ramblings and meanderings into theory and obscure RFCs, this is the book for you. You will find recipes for: Building a gateway, firewall, and wireless access point on a Linux network Building a VoIP server with Asterisk Secure remote administration with SSH Building secure VPNs with OpenVPN, and a Linux PPTP VPN server Single sign-on with Samba for mixed Linux/Windows LANs Centralized network directory with OpenLDAP Network monitoring with Nagios or MRTG Getting acquainted with IPv6 Setting up hands-free networks installations of new systems Linux system administration via serial console And a lot more. Each recipe includes a clear, hands-on solution with tested code, plus a discussion on why it works. When you need to solve a network problem without delay, and don't have the time or patience to comb through reference books or the Web for answers, Linux Networking Cookbook gives you exactly what you need.

You've experienced the shiny, point-and-click surface of your Linux computer—now dive below and explore its depths with the power of the command line. The Linux Command Line takes you from your very first terminal keystrokes to writing full programs in Bash, the most popular Linux shell. Along the way you'll learn the timeless skills handed down by generations of gray-bearded, mouse-shunning gurus: file navigation, environment configuration, command chaining, pattern matching with regular expressions, and more. In addition to that practical knowledge, author William Shotts reveals the philosophy behind these tools and the rich

heritage that your desktop Linux machine has inherited from Unix supercomputers of yore. As you make your way through the book's short, easily-digestible chapters, you'll learn how to:

- * Create and delete files, directories, and symlinks
- * Administer your system, including networking, package installation, and process management
- * Use standard input and output, redirection, and pipelines
- * Edit files with Vi, the world's most popular text editor
- * Write shell scripts to automate common or boring tasks
- * Slice and dice text files with cut, paste, grep, patch, and sed

Once you overcome your initial "shell shock," you'll find that the command line is a natural and expressive way to communicate with your computer. Just don't be surprised if your mouse starts to gather dust. A featured resource in the Linux Foundation's "Evolution of a SysAdmin"

Kismet Hacking Syngress

Software Defined Networks: A Comprehensive Approach, Second Edition provides in-depth coverage of the technologies collectively known as Software Defined Networking (SDN). The book shows how to explain to business decision-makers the benefits and risks in shifting parts of a network to the SDN model, when to integrate SDN technologies in a network, and how to develop or acquire SDN applications. In addition, the book emphasizes the parts of the technology that encourage opening up the network, providing treatment for alternative approaches to SDN that expand the definition of SDN as networking vendors adopt traits of SDN to their existing solutions. Since the first edition was published, the SDN market has matured, and is being

gradually integrated and morphed into something more compatible with mainstream networking vendors. This book reflects these changes, with coverage of the OpenDaylight controller and its support for multiple southbound protocols, the Inclusion of NETCONF in discussions on controllers and devices, expanded coverage of NFV, and updated coverage of the latest approved version (1.5.1) of the OpenFlow specification. Contains expanded coverage of controllers Includes a new chapter on NETCONF and SDN Presents expanded coverage of SDN in optical networks Provides support materials for use in computer networking courses A source of cross-compiler inspiration. There has never been a cross-compiler Guide like this. It contains 28 answers, much more than you can imagine; comprehensive answers and extensive details and references, with insights that have never before been offered in print. Get the information you need--fast! This all-embracing guide offers a thorough view of key knowledge and detailed insight. This Guide introduces what you want to know about cross-compiler. A quick look inside of some of the subjects covered: ARMv8 - Floating-point (VFP), Saxon XSLT - Versions, ETRAX CRIS - Software, SheevaPlug - Variants and modifications, OpenWrt - Development, Compilers, ARMv7 - Floating-point (VFP), List of BASIC dialects - D, Object Pascal - Legacy products, ARMhf - Floating-point (VFP), Aztec C - Current status, Target language (computing), Compiled, Google Web Toolkit - Development with GWT, Forth (programming language) - Structure of the language, Script (computer

programming) - Glue languages, Compiling, Visi On - Creation, Glue language - Glue languages, Scripting programming language - Glue languages, TI-BASIC, BCPL Uses and Implementations, Cygwin - Description, Cygwin - History, Pocket computer, Tiny C Compiler - Current status, GP2X - Open source development, Cross compiler - Canadian Cross, Macintosh Programmer's Workshop - Writing MPW tools, and much more...

An annotated guide to program and develop GNU/Linux Embedded systems quickly About This Book Rapidly design and build powerful prototypes for GNU/Linux Embedded systems Become familiar with the workings of GNU/Linux Embedded systems and how to manage its peripherals Write, monitor, and configure applications quickly and effectively, manage an external micro-controller, and use it as co-processor for real-time tasks Who This Book Is For This book targets Embedded System developers and GNU/Linux programmers who would like to program Embedded Systems and perform Embedded development. The book focuses on quick and efficient prototype building. Some experience with hardware and Embedded Systems is assumed, as is having done some previous work on GNU/Linux systems. Knowledge of scripting on GNU/Linux is expected as well. What You Will Learn Use embedded systems to implement your projects Access and manage peripherals for embedded systems Program embedded systems using languages such as C, Python, Bash, and PHP Use a complete distribution, such as Debian or Ubuntu, or an embedded one, such as OpenWrt or Yocto Harness device driver capabilities to optimize device

communications Access data through several kinds of devices such as GPIO's, serial ports, PWM, ADC, Ethernet, WiFi, audio, video, I2C, SPI, One Wire, USB and CAN Practical example usage of several devices such as RFID readers, Smart card readers, barcode readers, z-Wave devices, GSM/GPRS modems Usage of several sensors such as light, pressure, moisture, temperature, infrared, power, motion In Detail Embedded computers have become very complex in the last few years and developers need to easily manage them by focusing on how to solve a problem without wasting time in finding supported peripherals or learning how to manage them. The main challenge with experienced embedded programmers and engineers is really how long it takes to turn an idea into reality, and we show you exactly how to do it. This book shows how to interact with external environments through specific peripherals used in the industry. We will use the latest Linux kernel release 4.4.x and Debian/Ubuntu distributions (with embedded distributions like OpenWrt and Yocto). The book will present popular boards in the industry that are user-friendly to base the rest of the projects on - BeagleBone Black, SAMA5D3 Xplained, Wandboard and system-on-chip manufacturers. Readers will be able to take their first steps in programming the embedded platforms, using C, Bash, and Python/PHP languages in order to get access to the external peripherals. More about using and programming device driver and accessing the peripherals will be covered to lay a strong foundation. The readers will learn how to read/write data from/to the external environment by using both C

programs or a scripting language (Bash/PHP/Python) and how to configure a device driver for a specific hardware. After finishing this book, the readers will be able to gain a good knowledge level and understanding of writing, configuring, and managing drivers, controlling and monitoring applications with the help of efficient/quick programming and will be able to apply these skills into real-world projects. Style and approach This practical tutorial will get you quickly prototyping embedded systems on GNU/Linux. This book uses a variety of hardware to program the peripherals and build simple prototypes.

In Linux Unwired, you'll learn the basics of wireless computing, from the reasons why you'd want to go wireless in the first place, to setting up your wireless network or accessing wireless data services on the road. The book provides a complete introduction to all the wireless technologies supported by Linux. You'll learn how to install and configure a variety of wireless technologies to fit different scenarios, including an office or home network and for use on the road. You'll also learn how to get Wi-Fi running on a laptop, how to use Linux to create your own access point, and how to deal with cellular networks, Bluetooth, and Infrared. Other topics covered in the book include: Connecting to wireless hotspots Cellular data plans you can use with Linux Wireless security, including WPA and 802.1x Finding and mapping Wi-Fi networks with kismet and gpsd Connecting Linux to your Palm or Pocket PC Sending text messages and faxes from Linux through your cellular phone Linux Unwired is a one-stop wireless

information source for on-the-go Linux users. Whether you're considering Wi-Fi as a supplement or alternative to cable and DSL, using Bluetooth to network devices in your home or office, or want to use cellular data plans for access to data nearly everywhere, this book will show you the full-spectrum view of wireless capabilities of Linux, and how to take advantage of them.

Provides information on Asterisk, an open source telephony application.

Incorporating currencies, payment methods, and protocols that computers use to talk to each other, digital currencies are poised to grow in use and importance. The Handbook of Digital Currency gives readers a way to learn about subjects outside their specialties and provides authoritative background and tools for those whose primary source of information is journal articles. Taking a cross-country perspective, its comprehensive view of the field includes history, technicality, IT, finance, economics, legal, tax and regulatory environment. For those who come from different backgrounds with different questions in mind, The Handbook of Digital Currency is an essential starting point. Discusses all major strategies and tactics associated with digital currencies, their uses, and their regulations Presents future scenarios for the growth of digital currencies Written for regulators, crime prevention units, tax authorities, entrepreneurs, micro-financiers, micro-payment businesses, cryptography experts, software developers, venture capitalists, hedge fund managers, hardware manufacturers, credit card providers, money changers, remittance service providers, exchanges, and academics Winner of the 2015 "Outstanding Business Reference Source" by the Reference and User Services Association (RUSA)

How can we build bridges from the digital world of the Internet

to the analog world that surrounds us? By bringing accessibility to embedded components such as sensors and microcontrollers, JavaScript and Node.js might shape the world of physical computing as they did for web browsers. This practical guide shows hardware and software engineers, makers, and web developers how to talk in JavaScript with a variety of hardware platforms. Authors Patrick Mulder and Kelsey Breseman also delve into the basics of microcontrollers, single-board computers, and other hardware components. Use JavaScript to program microcontrollers with Arduino and Espruino Prototype IoT devices with the Tessel 2 development platform Learn about electronic input and output components, including sensors Connect microcontrollers to the Internet with the Particle Photon toolchain Run Node.js on single-board computers such as Raspberry Pi and Intel Edison Talk to embedded devices with Node.js libraries such as Johnny-Five, and remotely control the devices with Bluetooth Use MQTT as a message broker to connect devices across networks Explore ways to use robots as building blocks for shared experiences Manage your network resources with FreeRADIUS by mastering authentication, authorization and accounting. Written by all-star security experts, Practical IoT Hacking is a quick-start conceptual guide to testing and exploiting IoT systems and devices. 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

This book will teach the reader how to make the most of their WRT54G series hardware. These handy little inexpensive devices can be configured for a near endless amount of networking tasks. The reader will learn about the WRT54G's hardware components, the different third-party firmware available and the differences between them, choosing the firmware that is right for you, and how to install different third-party firmware distributions. Never before has this hardware been documented in this amount of detail, which includes a wide-array of photographs and complete listing of all WRT54G models currently available, including the WRTSL54GS. Once this foundation is laid, the reader will learn how to implement functionality on the WRT54G for fun projects, penetration testing, various network tasks, wireless spectrum analysis, and more! This title features never before seen hacks using the WRT54G. For those who want to make the most out of their WRT54G you can learn how to port code and develop your own software for the OpenWRT operating system. Never before seen and documented hacks, including

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wireless spectrum analysis Most comprehensive source for documentation on how to take advantage of advanced features on the inexpensive wrt54g platform Full coverage on embedded device development using the WRT54G and OpenWRT

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