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Discover how to write high-quality character driver code, interface with userspace, work with chip memory, and gain an in-depth understanding of working with hardware interrupts and kernel synchronization Key FeaturesDelve into hardware interrupt handling, threaded IRQs, tasklets, softirqs, and understand which to use whenExplore powerful techniques to perform user-kernel interfacing, peripheral I/O and use kernel mechanismsWork with key kernel synchronization primitives to solve kernel concurrency issuesBook Description Linux Kernel Programming Part 2 - Char Device Drivers and Kernel Synchronization is an ideal companion guide to the Linux Kernel Programming book. This book provides a comprehensive introduction for those new to Linux device driver development and will have you up and running with writing misc class character device driver code (on the 5.4 LTS Linux kernel) in next to no time. You'll begin by learning how to write a simple and complete misc class character driver before interfacing your driver with user-mode processes via procfs, sysfs, debugfs, netlink

sockets, and ioctl. You'll then find out how to work with hardware I/O memory. The book covers working with hardware interrupts in depth and helps you understand interrupt request (IRQ) allocation, threaded IRQ handlers, tasklets, and softirqs. You'll also explore the practical usage of useful kernel mechanisms, setting up delays, timers, kernel threads, and workqueues. Finally, you'll discover how to deal with the complexity of kernel synchronization with locking technologies (mutexes, spinlocks, and atomic/refcount operators), including more advanced topics such as cache effects, a primer on lock-free techniques, deadlock avoidance (with lockdep), and kernel lock debugging techniques. By the end of this Linux kernel book, you'll have learned the fundamentals of writing Linux character device driver code for real-world projects and products. What you will learnGet to grips with the basics of the modern Linux Device Model (LDM)Write a simple yet complete misc class character device driverPerform user-kernel interfacing using popular methodsUnderstand and handle hardware interrupts confidentlyPerform I/O on peripheral hardware chip memoryExplore kernel APIs to work with delays, timers, kthreads, and workqueuesUnderstand kernel concurrency issuesWork with key kernel synchronization primitives and discover how to detect and avoid deadlockWho this book is for An understanding of the topics covered in the Linux Kernel Programming book is highly recommended to make the most of this book. This book is for Linux programmers beginning to find their way with device driver development. Linux device driver developers

looking to overcome frequent and common kernel/driver development issues, as well as perform common driver tasks such as user-kernel interfaces, performing peripheral I/O, handling hardware interrupts, and dealing with concurrency will benefit from this book. A basic understanding of Linux kernel internals (and common APIs), kernel module development, and C programming is required. How to build low-cost, royalty-free embedded solutions with eCos, covers eCos architecture, installation, configuration, coding, debugging, bootstrapping, porting, and more, includes open source tools on CD-ROM for a complete embedded software development environment with eCos as the core. The first book to cover the LPIC-2 certification Linux allows developers to update source code freely, making it an excellent, low-cost, secure alternative to alternate, more expensive operating systems. It is for this reason that the demand for IT professionals to have an LPI certification is so strong. This study guide provides unparalleled coverage of the LPIC-2 objectives for exams 201 and 202. Clear and concise coverage examines all Linux administration topics while practical, real-world examples enhance your learning process. On the CD, you'll find the Sybex Test Engine, electronic flashcards, and a glossary containing the most important terms you need to understand.. Prepares you for exams 201 and 202 of the Linux Professional Institute Certification Offers clear, concise coverage on exam topics such as the Linux kernel, system startup, networking configuration, system maintenance, domain name server, file sharing, and more

Addresses additional key topics for the exams including network client management, e-mail services, system security, and troubleshooting This must-have study guide serves as an invaluable roadmap to attaining LPI certification. Provides a professional-level reference to the Samsung ARTIK API, as well as to other aspects of interest to developers such as the file systems, the operating system internals, various available interfaces, input/output, and the hardware itself. This is the perfect book for experienced programmers and developers who want to jump in and work with Samsung's new ARTIK product line to create Internet of Things devices and applications. It is also a perfect follow-up resource for new-to-the-field developers who are just getting past the beginning stages of learning the ARTIK. Samsung ARTIK Reference begins with a concise overview of the hardware and the various developer reference boards that are available. Attention then shifts to operating system internals, modes such as sleep and startup, and the various file systems and their parameters that are available for developers to adjust. Also included is a reference of API calls, guidance on input and output, documentation of serial, audio, graphic, and other interfaces. There is extensive reference to online resources with annotation and commentary guiding the learning process in many directions for further study. What You Will Learn Install the ARTIK toolkit and prepare to develop Manipulate the inner workings of the ARTIK operating system Look up and refer to details of the ARTIK API specification Perform input and output over the

peripheral interface buses Build embeddable applications in support of IoT devices Embed the ARTIK modules into your own hardware products Who This Book Is For Samsung ARTIK Reference is for experienced developers wanting to understand and begin working with ARTIK. The book is especially of interest to those wishing to interact with ARTIK modules from within their own applications and web services. Identify, capture and resolve common issues faced by Red Hat Enterprise Linux administrators using best practices and advanced troubleshooting techniques About This Book Develop a strong understanding of the base tools available within Red Hat Enterprise Linux (RHEL) and how to utilize these tools to troubleshoot and resolve real-world issues Gain hidden tips and techniques to help you quickly detect the reason for poor network/storage performance Troubleshoot your RHEL to isolate problems using this example-oriented guide full of real-world solutions Who This Book Is For If you have a basic knowledge of Linux from administration or consultant experience and wish to add to your Red Hat Enterprise Linux troubleshooting skills, then this book is ideal for you. The ability to navigate and use basic Linux commands is expected. What You Will Learn Identify issues that need rapid resolution against long term root cause analysis Discover commands for testing network connectivity such as telnet, netstat, ping, ip and curl Spot performance issues with commands such as top, ps, free, iostat, and vmstat Use tcpdump for traffic analysis Repair a degraded file system and rebuild a software raid Identify and troubleshoot hardware issues using dmesg

Troubleshoot custom applications with strace and knowledge of Linux resource limitations In Detail Red Hat Enterprise Linux is an operating system that allows you to modernize your infrastructure, boost efficiency through virtualization, and finally prepare your data center for an open, hybrid cloud IT architecture. It provides the stability to take on today's challenges and the flexibility to adapt to tomorrow's demands. In this book, you begin with simple troubleshooting best practices and get an overview of the Linux commands used for troubleshooting. The book will cover the troubleshooting methods for web applications and services such as Apache and MySQL. Then, you will learn to identify system performance bottlenecks and troubleshoot network issues; all while learning about vital troubleshooting steps such as understanding the problem statement, establishing a hypothesis, and understanding trial, error, and documentation. Next, the book will show you how to capture and analyze network traffic, use advanced system troubleshooting tools such as strace, tcpdump & dmesg, and discover common issues with system defaults. Finally, the book will take you through a detailed root cause analysis of an unexpected reboot where you will learn to recover a downed system. Style and approach This is an easy-to-follow guide packed with examples of real-world core Linux concepts. All the topics are presented in detail while you're performing the actual troubleshooting steps. 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 book is broken into four primary sections addressing key topics that Linux programmers need to master: Linux nuts and bolts, the Linux kernel, the Linux desktop, and Linux for the Web Effective examples help get readers up to speed with building software on a Linux-based system while using the tools and utilities that contribute to streamlining the software development process Discusses using emulation and virtualization technologies for kernel development and application testing Includes useful insights aimed at helping readers understand how their applications code fits in with the rest of the software stack Examines cross-compilation, dynamic device insertion and removal, key Linux projects (such as Project Utopia), and the internationalization capabilities present in the GNOME desktop This book constitutes the joint thoroughly refereed post-proceedings of The Modeling Social Media Workshop, MSM 2010 held in Toronto, Canada in June 2010 and the International Workshop on Mining Ubiquitous and Social Environments, MUSE 2010, held in Barcelona,

Spain in September 2010. The eight revised full papers included were carefully reviewed and selected after two rounds of reviewing and revision. The papers address various aspects of the analysis and engineering of socio-computational systems in which social, ubiquitous and computational processes are interdependent and tightly interwoven This book constitutes the refereed proceedings of the 12th International Conference on Parallel Computing, Euro-Par 2006. The book presents 110 carefully reviewed, revised papers. Topics include support tools and environments; performance prediction and evaluation; scheduling and load balancing; compilers for high performance; parallel and distributed databases, data mining and knowledge discovery; grid and cluster computing: models, middleware and architectures; parallel computer architecure and instruction-level parallelism; distributed systems and algorithms, and more. Advances in Parallel Computing series presents the theory and use of of parallel computer systems, including vector, pipeline, array, fifth and future generation computers and neural computers. This volume features original research work, as well as accounts on practical experience with and techniques for the use of parallel computers. Leverage the power of Linux to develop captivating and powerful embedded Linux projects About This Book Explore the best practices for all embedded product development stages Learn about the compelling features offered by the Yocto Project, such as customization, virtualization, and many more Minimize project costs by using open source tools and programs Who This Book Is For If you are a

developer who wants to build embedded systems using Linux, this book is for you. It is the ideal guide for you if you want to become proficient and broaden your knowledge. A basic understanding of C programming and experience with systems programming is needed. Experienced embedded Yocto developers will find new insight into working methodologies and ARM specific development competence. What You Will Learn Use the Yocto Project in the embedded Linux development process Get familiar with and customize the bootloader for a board Discover more about real-time layer, security, virtualization, CGL, and LSB See development workflows for the U-Boot and the Linux kernel, including debugging and optimization Understand the open source licensing requirements and how to comply with them when cohabiting with proprietary programs Optimize your production systems by reducing the size of both the Linux kernel and root filesystems Understand device trees and make changes to accommodate new hardware on your device Design and write multi-threaded applications using POSIX threads Measure real-time latencies and tune the Linux kernel to minimize them In Detail Embedded Linux is a complete Linux distribution employed to operate embedded devices such as smartphones, tablets, PDAs, set-top boxes, and many more. An example of an embedded Linux distribution is Android, developed by Google. This learning path starts with the module Learning Embedded Linux Using the Yocto Project. It introduces embedded Linux software and hardware architecture and presents information about the bootloader. You will go

through Linux kernel features and source code and get an overview of the Yocto Project components available. The next module Embedded Linux Projects Using Yocto Project Cookbook takes you through the installation of a professional embedded Yocto setup, then advises you on best practices. Finally, it explains how to quickly get hands-on with the Freescale ARM ecosystem and community layer using the affordable and open source Wandboard embedded board. Moving ahead, the final module Mastering Embedded Linux Programming takes you through the product cycle and gives you an in-depth description of the components and options that are available at each stage. You will see how functions are split between processes and the usage of POSIX threads. By the end of this learning path, your capabilities will be enhanced to create robust and versatile embedded projects. This Learning Path combines some of the best that Packt has to offer in one complete, curated package. It includes content from the following Packt products: Learning Embedded Linux Using the Yocto Project by Alexandru Vaduva Embedded Linux Projects Using Yocto Project Cookbook by Alex Gonzalez Mastering Embedded Linux Programming by Chris Simmonds Style and approach This comprehensive, step-by-step, pragmatic guide enables you to build custom versions of Linux for new embedded systems with examples that are immediately applicable to your embedded developments. Practical examples provide an easy-to-follow way to learn Yocto project development using the best practices and working methodologies. Coupled with hints and best

practices, this will help you understand embedded Linux better. The LNCS Journal Transactions on Aspect-Oriented Software Development is devoted to all facets of aspect-oriented software development (AOSD) techniques in the context of all phases of the software life cycle, from requirements and design to implementation, maintenance and evolution. The focus of the journal is on approaches for systematic identification, modularization, representation and composition of crosscutting concerns, i.e., the aspects and evaluation of such approaches and their impact on improving quality attributes of software systems. This volume, the fourth in the Transactions on Aspect-Oriented Software Development series, presents 5 revised papers together with 2 guest editors' introductions. The papers, which focus on mapping of early aspects across the software lifecycle, and aspects and software evolution, have passed through a careful peer reviewing process, carried out by the journal's Editorial Board and expert referees. Provides information on writing a driver in Linux, covering such topics as character devices, network interfaces, driver debugging, concurrency, and interrupts. Get hands-on recipes to make the most of Ubuntu Server, CentOS 7 Linux Server and RHEL 7 Server About This Book Get Linux servers up and running in seconds, In-depth guide to explore new features and solutions in server administration Maintain performance and security of your server solution by deploying expert configuration advice Who This Book Is For This Learning Path is intended for system administrators with a basic understanding of Linux

operating systems and written with the novice-to-intermediate Linux user in mind. To get the most of this Learning Path, you should have a working knowledge of basic system administration and management tools. What You Will Learn Set up high performance, scalable, and fault-tolerant back ends with web and database servers Facilitate team communication with a real-time chat service and collaboration tools Monitor, manage and develop your server's file system to maintain a stable performance Gain best practice methods on sharing files and resources through a network Install and configure common standard services such as web, mail, FTP, database and domain name server technologies Create kickstart scripts to automatically deploy RHEL 7 systems Use Orchestration and configuration management tools to manage your environment In Detail Linux servers are frequently selected over other server operating systems for their stability, security and flexibility advantages.This Learning Path will teach you how to get up and running with three of the most popular Linux server distros: Ubuntu Server, CentOS 7 Server, and RHEL 7 Server. We will begin with the Ubuntu Server and show you how to make the most of Ubuntu's advanced functionalities. Moving on, we will provide you with all the knowledge that will give you access to the inner workings of the latest CentOS version 7. Finally, touching RHEL 7, we will provide you with solutions to common RHEL 7 Server challenges.This Learning Path combines some of the best that Packt has to offer in one complete, curated package. It includes content from the following Packt products: 1)

Ubuntu Server Cookbook 2) CentOS 7 Linux Server Cookbook, Second Edition 3) Red Hat Enterprise Linux Server Cookbook Style and approach This easy-to-follow practical guide contains hands on examples and solutions to real word administration problems and problems faced when building your RHEL 7 system from scratch using orchestration tools. The Official Ubuntu Packaging Guide contains installation instructions for the Ubuntu 9.04 system (codename "Jaunty Jackalope"). It also contains pointers to more information and information on how to make the most of your new Ubuntu system. This book constitutes the refereed proceedings of the 20th International Conference on Information Security, ISC 2017, held in Ho Chi Minh City, Vietnam, in November 2017. The 25 revised full papers presented were carefully reviewed and selected from 97 submissions. The papers are organized in topical sections on symmetric cryptography, post-quantum cryptography, public-key cryptography, authentication, attacks, privacy, mobile security, software security, and network and system security. If you use Linux in development or operations and need a structured approach to help you dive deeper, this book is for you. Author Michael Hausenblas also provides tips and tricks for improving your workflow with this open source operating system. Whether you're a developer, software architect, or site reliability engineer, this hands-on guide focuses on ways to use Linux for your everyday needs, from development to office-related tasks. Along the way, you'll gain hands-on experience with modern Linux terminals and shells, and learn how to

manage your workloads. You'll understand how to run Linux applications by using containers, systemd, modern filesystems, and immutable distros such as Flatcar and Bottlerocket. Use Linux as a modern work environment, rather than just from an admin perspective Learn critical components such as the Linux kernel, terminal multiplexer, human-friendly shells, and portable shell scripting Become familiar with access control, from file permissions to capabilities, and understand the role of filesystems as a fundamental building block Learn about application dependency management and containers Gain hands-on experience with the Linux networking stack and tooling, including DNS Apply modern operating system observability to manage your workloads Become familiar with interprocess communication, virtual machines, and selected security topics The two volume set, LNCS 12308 + 12309, constitutes the proceedings of the 25th European Symposium on Research in Computer Security, ESORICS 2020, which was held in September 2020. The conference was planned to take place in Guildford, UK. Due to the COVID-19 pandemic, the conference changed to an online format. The total of 72 full papers included in these proceedings was carefully reviewed and selected from 366 submissions. The papers were organized in topical sections named: database and Web security; system security; network security; software security; machine learning security; privacy; formal modelling; applied cryptography; analyzing attacks; post-quantum cryptogrphy; security analysis; and blockchain. The official "Ubuntu 11.04 Installation Guide" contains

installation instructions for the Ubuntu 11.04 system (codename "Natty Narwhal"). Effectively debug kernel modules, device drivers, and the kernel itself by gaining a solid understanding of powerful open source tools and advanced kernel debugging techniques Key Features Fully understand how to use a variety of kernel and module debugging tools and techniques using examples Learn to expertly interpret a kernel Oops and identify underlying defect(s) Use easy-to-look up tables and clear explanations of kernel-level defects to make this complex topic easy Book Description The Linux kernel is at the very core of arguably the world's best production-quality OS. Debugging it, though, can be a complex endeavor. Linux Kernel Debugging is a comprehensive guide to learning all about advanced kernel debugging. This book covers many areas in-depth, such as instrumentation-based debugging techniques (printk and the dynamic debug framework), and shows you how to use Kprobes. Memory-related bugs tend to be a nightmare – two chapters are packed with tools and techniques devoted to debugging them. When the kernel gifts you an Oops, how exactly do you interpret it to be able to debug the underlying issue? We've got you covered. Concurrency tends to be an inherently complex topic, so a chapter on lock debugging will help you to learn precisely what data races are, including using KCSAN to detect them. Some thorny issues, both debug- and performance-wise, require detailed kernel-level tracing; you'll learn to wield the impressive power of Ftrace and its frontends. You'll also discover how to handle kernel lockups, hangs, and the

dreaded kernel panic, as well as leverage the venerable GDB tool within the kernel (KGDB), along with much more. By the end of this book, you will have at your disposal a wide range of powerful kernel debugging tools and techniques, along with a keen sense of when to use which. What you will learn Explore instrumentation-based printk along with the powerful dynamic debug framework Use static and dynamic Kprobes to trap into kernel/module functions Catch kernel memory defects with KASAN, UBSAN, SLUB debug, and kmemleak Interpret an Oops in depth and precisely identify it's source location Understand data races and use KCSAN to catch evasive concurrency defects Leverage Ftrace and trace-cmd to trace the kernel flow in great detail Write a custom kernel panic handler and detect kernel lockups and hangs Use KGDB to single-step and debug kernel/module source code Who this book is for This book is for Linux kernel developers, module/driver authors, and testers interested in debugging and enhancing their Linux systems at the level of the kernel. System administrators who want to understand and debug the internal infrastructure of their Linux kernels will also find this book useful. A good grasp on C programming and the Linux command line is necessary. Some experience with kernel (module) development will help you follow along. Learn how to write high-quality kernel module code, solve common Linux kernel programming issues, and understand the fundamentals of Linux kernel internals Key FeaturesDiscover how to write kernel code using the Loadable Kernel Module frameworkExplore industry-grade

techniques to perform efficient memory allocation and data synchronization within the kernelUnderstand the essentials of key internals topics such as kernel architecture, memory management, CPU scheduling, and kernel synchronizationBook Description Linux Kernel Programming is a comprehensive introduction for those new to Linux kernel and module development. This easy-to-follow guide will have you up and running with writing kernel code in next-to-no time. This book uses the latest 5.4 Long-Term Support (LTS) Linux kernel, which will be maintained from November 2019 through to December 2025. By working with the 5.4 LTS kernel throughout the book, you can be confident that your knowledge will continue to be valid for years to come. You'll start the journey by learning how to build the kernel from the source. Next, you'll write your first kernel module using the powerful Loadable Kernel Module (LKM) framework. The following chapters will cover key kernel internals topics including Linux kernel architecture, memory management, and CPU scheduling. During the course of this book, you'll delve into the fairly complex topic of concurrency within the kernel, understand the issues it can cause, and learn how they can be addressed with various locking technologies (mutexes, spinlocks, atomic, and refcount operators). You'll also benefit from more advanced material on cache effects, a primer on lock-free techniques within the kernel, deadlock avoidance (with lockdep), and kernel lock debugging techniques. By the end of this kernel book, you'll have a detailed understanding of the fundamentals of writing Linux kernel

module code for real-world projects and products. What you will learnWrite high-quality modular kernel code (LKM framework) for 5.x kernelsConfigure and build a kernel from sourceExplore the Linux kernel architectureGet to grips with key internals regarding memory management within the kernelUnderstand and work with various dynamic kernel memory alloc/dealloc APIsDiscover key internals aspects regarding CPU scheduling within the kernelGain an understanding of kernel concurrency issuesFind out how to work with key kernel synchronization primitivesWho this book is for This book is for Linux programmers beginning to find their way with Linux kernel development. If you're a Linux kernel and driver developer looking to overcome frequent and common kernel development issues, or understand kernel intervals, you'll find plenty of useful information. You'll need a solid foundation of Linux CLI and C programming before you can jump in. Software composition is a complex and fast-moving field, and this excellent new Springer volume keeps professionals in the subject right up to date. It constitutes the thoroughly refereed post-proceedings of the 6th International Workshop on Software Composition, SC 2007. The 21 papers are organized in topical sections on composition contracts, composition design and analysis, dynamic composition, short papers, aspect-oriented programming, and structural composition. The official "Fedora 15 Deployment Guide" covers deployment, configuration, and administration of Fedora 15. It is oriented towards system administrators with a basic understanding of the system. Welcome to the

"PostgreSQL 8.4 Official Documentation - Volume II. Server Administration"! After many years of development, PostgreSQL has become feature-complete in many areas. This release shows a targeted approach to adding features (e.g., authentication, monitoring, space reuse), and adds capabilities defined in the later SQL standards. As more and more organizations migrate their applications to the cloud, cloud native computing has become the dominant way to approach software development and execution. Protecting modern, cloud native applications from threats requires the ability to defend them at runtime, when they're most vulnerable to attacks. This practical guide introduces you to Falco, the open source standard for continuous risk and threat detection across Kubernetes, containers, and the cloud. Falco creator Loris Degioanni and core maintainer Leonardo Grasso bring you up to speed on threat detection and show you how to get Falco up and running, plus advanced topics such as deploying Falco in production and writing your own security rules. You'll learn how to: Leverage runtime security in cloud native environments Detect configuration changes and unexpected behavior in the cloud Protect containers, Kubernetes, and cloud applications using Falco Run, deploy, and customize Falco Deploy, configure, and maintain Falco in a production environment Improve your compliance This handy cookbook teaches new-to-intermediate Linux users the essential skills necessary to manage a home or small business network. All of the recipes in this book are useful for any Linux system, including local area networks that involve iOS- or Android-

powered devices. You'll learn how to install, maintain, and troubleshoot a Linux system, add and remove software, manage filesystems, run backups, and more. Carla Schroder, author of over a thousand Linux how-tos for various publications, teaches you the solid Linux foundations you need to build and run your network. How do you multiboot? Or troubleshoot software, hardware, and network issues? Each recipe addresses a specific problem and includes a discussion that explains the solution and provides insight into how it works. Learn how the Linux ecosystem is structured Set up a local area network (LAN) Enable smartphones and tablets to safely connect to your LAN Manage fundamental subsystems and essential tasks Secure remote access and build a firewall/internet gateway Manage users and groups, and filesystems and partitions Rescue nonbooting systems Manage name services and the Dynamic Host Configuration Protocol (DHCP). This book constitutes the refereed proceedings of the 26th International Conference on Architecture of Computing Systems, ARCS 2013, held in Prague, Czech Republic, in February 2013. The 29 papers presented were carefully reviewed and selected from 73 submissions. The topics covered are computer architecture topics such as multi-cores, memory systems, and parallel computing, adaptive system architectures such as reconfigurable systems in hardware and software, customization and application specific accelerators in heterogeneous architectures, organic and autonomic computing including both theoretical and practical results on self-organization, self-configuration, self-optimization,

self-healing, and self-protection techniques, operating systems including but not limited to scheduling, memory management, power management, RTOS, energy-awareness, and green computing. There's a great deal of excitement surrounding the use of Linux in embedded systems -- for everything from cell phones to car ABS systems and water-filtration plants -- but not a lot of practical information. Building Embedded Linux Systems offers an in-depth, hard-core guide to putting together embedded systems based on Linux. Updated for the latest version of the Linux kernel, this new edition gives you the basics of building embedded Linux systems, along with the configuration, setup, and use of more than 40 different open source and free software packages in common use. The book also looks at the strengths and weaknesses of using Linux in an embedded system, plus a discussion of licensing issues, and an introduction to real-time, with a discussion of real-time options for Linux. This indispensable book features arcane and previously undocumented procedures for: Building your own GNU development toolchain Using an efficient embedded development framework Selecting, configuring, building, and installing a target-specific kernel Creating a complete target root filesystem Setting up, manipulating, and using solid-state storage devices Installing and configuring a bootloader for the target Cross-compiling a slew of utilities and packages Debugging your embedded system using a plethora of tools and techniques Using the uClibc, BusyBox, U-Boot, OpenSSH, thttpd, tftp, strace, and gdb packages By presenting how to build the operating system

components from pristine sources and how to find more documentation or help, Building Embedded Linux Systems greatly simplifies the task of keeping complete control over your embedded operating system. Euro-Par 2005 was the eleventh conference in the Euro-Par series. It was organized by the Centre for Informatics and Information Technology (CITI) and the Department of Informatics of the Faculty of Science and Technology of Universidade Nova de Lisboa, at the Campus of Monte de Caparica. Full coverage of the latest LPI-level 2 exams, with bonus online test bank LPIC-2 is the one-stop preparation resource for the Linux Professional Institute's Advanced Level certification exam. With 100 percent coverage of all exam objectives, this book provides clear and concise coverage of the Linux administration topics you'll need to know for exams 201 and 202. Practical examples highlight the real-world applications of important concepts, and together, the author team provides insights based on almost fifty years in the IT industry. This brand new second edition has been completely revamped to align with the latest versions of the exams, with authoritative coverage of the Linux kernel, system startup, advanced storage, network configuration, system maintenance, web services, security, troubleshooting, and more. You also get access to online learning tools including electronic flashcards, chapter tests, practice exams, and a glossary of critical terms to help you solidify your understanding of upper-level Linux administration topics. The LPI-level 2 certification confirms your advanced Linux skill set, and the demand

for qualified professionals continues to grow. This book gives you the conceptual guidance and hands-on practice you need to pass the exam with flying colors. Understand all of the material for both LPIC-2 exams Gain insight into real-world applications Test your knowledge with chapter tests and practice exams Access online study aids for more thorough preparation Organizations are flocking to the open-source Linux as an excellent, low-cost, secure alternative to expensive operating systems like Microsoft Windows. As the Linux market share continues to climb, organizations are scrambling to find network and server administrators with expert Linux knowledge and highly practical skills. The LPI-level 2 certification makes you the professional they need, and LPIC-2 is your ideal guide to getting there. This book constitutes the refereed proceedings of the 12th International Conference on Modelling Techniques and Tools for Computer Performance Evaluation, TOOLS 2002, held in London, UK in April 2002. The 18 revised full papers and six tool papers presented together with an invited contribution were carefully reviewed and selected from 57 submissions. Among the topics addressed are generic techniques like stochastic process algebras and the analysis of Petri nets and Markov chains, as well as the development and employment of tools in areas such as the Internet, software performance engineering, parallel systems, real-time systems, and transaction processing. This version of the Server Bible will be the largest yet, catering to what is certainly the most advanced operating system introduced by Microsoft. The book will cater to the

needs of the server administration community and will be designed to be a critical reference. The book will extensively cover the most notable new feature of Windows Server known as the "Server Core." Server Core is a significantly scaled-back installation where no graphical shell (explorer.exe) is installed, and all configuration and maintenance is done entirely through the command-line windows, or by connecting to the machine remotely using Microsoft Management Console. Server Core will also not include the .NET Framework, Internet Explorer or many other features not related to core server features. A Server Core machine can be configured for four basic roles: Domain controller, DNS Server, DHCP Server, and file server. Chapters on setup and installation will also cover the new componentized operating system Image-based setup and deployment tools, using WIM. In addition to the already extensive Active Directory support this book will now fully cover the "Read-Only Domain Controller" operation mode in Active Directory, intended for use in branch office scenarios where a domain controller may reside in a low physical security environment, was introduced in Windows Server 2003 R2 and will be extended in the 2008 version. Chapters covering policy-based networking, branch management and enhanced end user collaboration will be extended. Windows Server 2008 will also ship Internet Information Services 7 and the current chapters on IIS will thus be extended. Coverage of Windows SharePoint Services 3.0 will also be introduced into this part of the book. We will also include coverage of the improved hot patching

technology, which is a feature that allows non-kernel patches to occur without the need for a reboot. A significantly upgraded Terminal Services component, supporting RDP 6.0. will be covered in the chapter on terminal services. The most notable improvement is the ability to share a single application over a Remote Desktop connection, instead of the entire desktop. This will be added to an already extended chapter on this remote access technology. In addition to these new features the book will also carry over existing features brought over from (SP1/R2) of Server 2003. These include covering of new security features of the operating system, Group Policy management, change control and service level, and administration practices. This book constitutes the thoroughly refereed post-conference proceedings of the Second International Conference on Runtime Verification, RV 2011, held in San Francisco, USA, in September 2011. The 24 revised full papers presented together with 3 invited papers, 4 tutorials and 4 tool demonstrations were carefully reviewed and selected from 71 submissions. The papers are organized in topical sections on parallelism and deadlocks, malware detection, temporal constraints and concurrency bugs, sampling and specification conformance, real-time, software and hardware systems, memory transactions, tools; foundational techniques and multi-valued approaches. This book is part of the PostgreSQL 9.0 documentation collection (up-to-date & full), published by Fultus Corporation. PostgreSQL 9.0 includes built-in, binary replication, and over a dozen other major features which will appeal to everyone from

web developers to database hackers. RHCE: Red Hat Certified Engineer Exam Notes provides the fastest and most effective way to make sure you're ready to pass the Red Hat Certified Engineer exam. The unique, innovative Exam Notes approach helps you gain and retain the knowledge you need, study point by study point Critical Information sections provide detailed analyses of the key issues for each study point Necessary Procedures sections cover the nuts and bolts of each topic with concise step-by-step instructions. Exam Essentials sections highlight crucial subject areas you'll need to know for the exam. Key Terms and Concepts sections define the words and concepts vital to passing the exam. Sample Questions sections preview the types of questions found in the exam and give answers and explanations. Presents an overview of kernel configuration and building for version 2.6 of the Linux kernel. Boost your Linux+/LPIC readiness with practice tests for all exam domains CompTIA Linux+ and LPIC Practice Tests provide 100% coverage of all exam objectives for both the CompTIA Linux+ exams LX0-103 and LX0-104, and the LPIC exams 101-400, 102-400, and 201and 202, through 1,200+ expertly crafted practice questions. These easy to navigate practice questions cover the Linux+ and LPIC-1 exams, covering all 10 domains. The second part covers the LPIC-2 exam, covering all 13 LPIC-2 domains. An additional two 60-question practice exams per section help you gauge your readiness — and hone your test-taking strategy — well in advance of exam day, giving you the thorough preparation you need to approach the exam

with confidence. You will also gain access to the Sybex interactive learning environment where you have access to all questions and can create your own practice tests based on areas further review is needed Master the skills and concepts on the LPIC-1 and the LPIC-2 exams Gauge your understanding with unique practice tests for each exam domain Identify weak points and prioritize your preparation Preview exam day with four 60-question practice exams Practice tests are among the most effective exam preparation strategies. These tests are designed to mimic the Linux+, LPIC-1 and LPIC-2 exams, giving you the practice you need to ensure you are fully prepared. This book can be used alone or with the Sybex study guides and deluxe study guides. Start preparing for your Linux certification today. 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 perk, 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.