

The Basic Kernel Source Code Secrets

Find an introduction to the architecture, concepts and algorithms of the Linux kernel in Professional Linux Kernel Architecture, a guide to the kernel sources and large number of connections among subsystems. Find an introduction to the relevant structures and functions exported by the kernel to userland, understand the theoretical and conceptual aspects of the Linux kernel and Unix derivatives, and gain a deeper understanding of the kernel. Learn how to reduce the vast amount of information contained in the kernel sources and obtain the skills necessary to understand the kernel sources.

Part of a series examining how operating systems really work, this text looks at 386BSD. 386BSD was based on UNIX, but integrates cutting-edge ideas from Windows NT, Mach, Sun's Solaris, and OS/2. This work looks at the source code from the system and desc

Master All the Techniques You Need to Succeed with Fedora and Red Hat Enterprise Linux Set up key Internet servers, step by step, including Samba, Apache, sendmail, DNS, FTP, and other Internet servers Automate and streamline administration with this edition's outstanding new chapter on Perl scripting Master GUI-based admin tools and the powerful Linux command line (CLI) In this book, one of the world's leading Linux experts brings together all the knowledge you'll need to succeed with Fedora or Red Hat Enterprise Linux in any real-world environment. Best-selling author Mark Sobell explains Linux clearly and effectively, focusing on skills you'll actually use as an administrator, user, or programmer. Sobell assumes no prior Linux knowledge. He starts at the beginning and walks you through every topic and task that matters, using easy-to-understand examples. Step by step, you'll learn how to install and configure Linux from the accompanying DVD, navigate its graphical user interfaces, provide file/print sharing and Internet services, make sure Linux desktops and networks are as secure as possible, work with the powerful command line, administer Linux efficiently, and even automate administration with Perl scripts. Mark Sobell has taught hundreds of thousands of Linux and UNIX professionals. He knows every Linux nook and cranny—and he never forgets what it's like to be new to Linux. Whatever you'll want to do with Linux—now or in the future—this book gives you everything you'll need. Compared with the other Linux books out there, A Practical Guide to Fedora™ and Red Hat® Enterprise Linux®, Fifth Edition, delivers Complete, up-to-the-minute coverage of Fedora 12 and RHEL 5 Deeper coverage of the command line and the newest GUIs, including desktop customization More practical coverage of file sharing using Samba, NFS, and FTP More and better coverage of automating administration with Perl More usable, realistic coverage of Internet server configuration, including Apache, sendmail, NFS, DNS/BIND, and LDAP More state-of-the-art security techniques, including SELinux (Security Enhanced Linux), ACLs (Access Control Lists), firewall setup using both the Red Hat GUI and iptables, and a full chapter on OpenSSH More and better coverage of system/network administration tasks, including new coverage of network monitoring with Cacti Complete instructions on keeping Linux systems up-to-date using yum And much more, including a 500+ term glossary and a comprehensive index Includes DVD! Get the full version of the Fedora 12 release!

Learn how to write high-quality kernel module code, solve common Linux kernel programming issues, and understand the fundamentals of Linux kernel internals Key Features Discover how to write kernel code using the Loadable Kernel Module framework Explore industry-grade techniques to perform efficient memory allocation and data synchronization within the kernel Understand the essentials of key internals topics such as kernel architecture, memory management, CPU scheduling, and kernel synchronization Book 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. This Linux book begins by showing you how to build the kernel from the source. Next, you'll learn how to write your first kernel module using the powerful Loadable Kernel Module (LKM) framework. The book then covers key kernel internals topics including Linux kernel architecture, memory management, and CPU scheduling. Next, 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 learn Write high-quality modular kernel code (LKM framework) for 5.x kernels Configure and build a kernel from source Explore the Linux kernel architecture Get to grips with key internals regarding memory management within the kernel Understand and work with various dynamic kernel memory alloc/dealloc APIs Discover key internals aspects regarding CPU scheduling within the kernel Gain an understanding of kernel concurrency issues Find out how to work with key kernel synchronization primitives Who this book is for This book is for Linux programmers beginning to find their way with Linux kernel development. Linux kernel and driver developers looking to overcome frequent and common kernel development issues, as well as understand kernel internals, will benefit from this book. A basic understanding of Linux CLI and C programming is required.

The Most Complete, Easy-to-Follow Guide to Ubuntu Linux Mark Sobell's A Practical Guide to Ubuntu Linux®, Second Edition, isn't just the most thorough and up-to-date reference to installing, configuring, and working with Ubuntu. It also provides comprehensive server coverage you won't find in any other Ubuntu book. The fully updated JumpStart sections help you get complex servers running quickly. Whatever your questions may be, the completely revamped index gives you even faster access to the answers you're searching for. And a brand new chapter on Perl programming teaches you the basics of this powerful system administration language. Sobell walks you through every feature and technique you'll need, from installing Ubuntu to working with GNOME, Samba, exim4, Apache, DNS, NIS, LDAP, ufw, firestarter, and iptables. His exceptionally clear explanations demystify everything from system security to Windows file/printer sharing. You'll find full chapters on running Ubuntu from the command line and GUI, administering systems and security, setting up networks and Internet servers, and much more. Along the way, you'll learn both the "hows" and the "whys" of Ubuntu. Sobell knows every Linux nook and cranny: He's taught hundreds of thousands of readers—and never forgets what it's like to be new to Linux. Whether you're a user, administrator, or programmer, this book gives you all you need—and more. The world's most practical Ubuntu Linux book is now even more useful! This book delivers Hundreds of easy-to-follow, easy-to-use examples Updated JumpStarts for setting up Samba, Apache, Mail, FTP, NIS, OpenSSH, DNS, and other complex servers Deeper coverage of the command line, GNOME GUI, and desktop customization

Coverage of crucial Ubuntu topics such as sudo and the Upstart init daemon More detailed, usable coverage of Internet server configuration, including Apache, exim4, and DNS/BIND More state-of-the-art security techniques, including firewall setup using ufw, firestarter, and iptables, plus a full chapter on OpenSSH Deeper coverage of essential system and network administration tasks—from managing users to CUPS printing, configuring LANs to building a kernel Complete instructions on keeping Ubuntu systems up-to-date using aptitude, Synaptic, and the Software Sources window And much more...including a 500+ term glossary and five detailed appendixes Includes DVD! Get the full version of the Ubuntu 8.10 (Intrepid Ibex) release!

Source Code SecretsThe Basic KernelPeer to Peer Communications

The open source saga has many fascinating chapters. It is partly the story of Linus Torvalds, the master hacker who would become chief architect of the Linux operating system. It is also the story of thousands of devoted programmers around the world who spontaneously worked in tandem to complete the race to shape Linux into the ultimate killer app. Rebel Code traces the remarkable roots of this unplanned revolution. It echoes the twists and turns of Linux's improbable development, as it grew through an almost biological process of accretion and finally took its place at the heart of a jigsaw puzzle that would become the centerpiece of open source. With unprecedented access to the principal players, Moody has written a powerful tale of individual innovation versus big business. Rebel Code provides a from-the-trenches perspective and looks ahead to how open source is challenging long-held conceptions of technology, commerce, and culture.

Newly updated to include new calls and techniques introduced in Versions 2.2 and 2.4 of the Linux kernel, a definitive resource for those who want to support computer peripherals under the Linux operating system explains how to write a driver for a broad spectrum of devices, including character devices, network interfaces, and block devices. Original. (Intermediate)

Build your expertise in the BPF virtual machine in the Linux kernel with this practical guide for systems engineers. You'll not only dive into the BPF program lifecycle but also learn to write applications that observe and modify the kernel's behavior; inject code to monitor, trace, and securely observe events in the kernel; and more. Authors David Calavera and Lorenzo Fontana help you harness the power of BPF to make any computing system more observable. Familiarize yourself with the essential concepts you'll use on a day-to-day basis and augment your knowledge about performance optimization, networking, and security. Then see how it all comes together with code examples in C, Go, and Python. Write applications that use BPF to observe and modify the Linux kernel's behavior on demand Inject code to monitor, trace, and observe events in the kernel in a secure way—no need to recompile the kernel or reboot the system Explore code examples in C, Go, and Python Gain a more thorough understanding of the BPF program lifecycle

Disc contains: linux-0.01 -- linux-2.4.1 -- linux-2.4.5 -- Tags files for all included kernel distributions -- lckc_code -- lckc-find-line.el -- Cross-reference listing for lckc_code.

Linux Kernel Module Programming Guide is for people who want to write kernel modules. It takes a hands-on approach starting with writing a small "hello, world" program, and quickly moves from there. Far from a boring text on programming, Linux Kernel Module Programming Guide has a lively style that entertains while it educates. An excellent guide for anyone wishing to get started on kernel module programming. *** Money raised from the sale of this book supports the development of free software and documentation.

The Linux Enterprise Cluster explains how to take a number of inexpensive computers with limited resources, place them on a normal computer network, and install free software so that the computers act together like one powerful server. This makes it possible to build a very inexpensive and reliable business system for a small business or a large corporation. The book includes information on how to build a high-availability server pair using the Heartbeat package, how to use the Linux Virtual Server load balancing software, how to configure a reliable printing system in a Linux cluster environment, and how to build a job scheduling system in Linux with no single point of failure. The book also includes information on high availability techniques that can be used with or without a cluster, making it helpful for System Administrators even if they are not building a cluster. Anyone interested in deploying Linux in an environment where low cost computer reliability is important will find this book useful. The CD-ROM includes the Linux kernel, ldirectord software, the Mon monitoring package, the Ganglia package, OpenSSH, rsync, SystemImager, Heartbeat, and all the figures and illustrations used in the book.

Linux® is being adopted by an increasing number of embedded systems developers, who have been won over by its sophisticated scheduling and networking, its cost-free license, its open development model, and the support offered by rich and powerful programming tools. While there is a great deal of hype surrounding the use of Linux in embedded systems, there is not a lot of practical information. Building Embedded Linux Systems is the first in-depth, hard-core guide to putting together an embedded system based on the Linux kernel. 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 Details are provided for various target architectures and hardware configurations, including a thorough review of Linux's support for embedded hardware. All explanations rely on the use of open source and free software packages. By presenting how to build the operating system components from pristine sources and how to find more documentation or help, this book greatly simplifies the task of keeping complete control over one's embedded operating system, whether it be for technical or sound financial reasons. Author Karim Yaghmour, a well-known designer and speaker who is responsible for the Linux Trace Toolkit, starts by discussing the strengths and weaknesses of Linux as an embedded operating system. Licensing issues are included, followed by a discussion of the basics of building embedded Linux systems. The configuration, setup, and use of over forty different open source and free software packages commonly used in embedded Linux systems are also covered. uClibc, BusyBox, U-Boot, OpenSSH, tftpd, tftp, strace, and gdb are among the packages discussed.

The two-volume set LNCS 5072 and 5073 constitutes the refereed proceedings of the International Conference on Computational Science and Its Applications, ICCSA 2008, held in Perugia, Italy, in June/July, 2008. The two volumes contain papers presenting a wealth of original research results in the field of computational science, from foundational issues in computer science and mathematics to advanced applications in virtually all sciences making use of computational techniques. The topics of the fully refereed papers are structured according to the five major conference themes: computational methods, algorithms and scientific applications, high performance technical computing and networks, advanced and emerging applications, geometric modelling, graphics and visualization, as well as information systems and information technologies. Moreover, submissions from more than 20 workshops and technical sessions in the areas, such as embedded systems, geographical analysis, computational geometry, computational geomatics, computer graphics, virtual reality, computer modeling, computer algebra, mobile communications, wireless networks, computational forensics, data storage, information security, web learning, software engineering, computational intelligence, digital security, biometrics, molecular structures, material design, ubiquitous computing, symbolic computations, web systems and intelligence, and e-education contribute to this publication.

This official Novell Press Study Guide is your key to reviewing the fundamentals of installing, running, and administering SUSE LINUX so that you can pass Novell Practicum: 050-069, Novell's Certified Linux Professional exam, and become a Novell CLP. Expert trainer and curriculum developer Emmett Dulaney brings you the practical knowledge, tested techniques, real-world scenarios, and hands-on lab exercises you need to help you get the CLP certification from Novell. Provides information on writing a driver in Linux, covering such topics as character devices, network interfaces, driver debugging, concurrency, and interrupts.

Since the introduction of Linux version 1.2 in March 1995, a worldwide community has evolved from programmers who were attracted by the reliability and flexibility of this completely free operating system. Now at version 2.0, Linux is no longer simply the operating system of choice for hackers, but is being successfully employed in commercial software development, by Internet providers and in research and teaching. This book is written for anybody who wants to learn more about Linux. It explains the inner mechanisms of Linux from process scheduling to memory management and file systems, and will tell you all you need to know about the structure of the kernel, the heart of the Linux operating system. This New Edition: has been thoroughly updated throughout to cover Linux 2.0 shows you how the Linux operating system actually works so that you can start to program the Linux kernel for yourself introduces the kernel sources and describes basic algorithms and data structures, such as scheduling and task structure helps you to understand file systems, networking, and how systems boot The accompanying CD-ROM contains Slackware distribution 3.1 together with its complete source code, the Linux kernel sources up to version 2.0.27, the PC speaker driver, and a wealth of documentation. 0201331438B04062001

In this applications-oriented reference, Doug Abbott shows how to put Linux to work in embedded and real-time applications. Among the topics Abbott discusses include memory management, device drivers, interrupt handling, kernel instrumentation, bootloaders, embedded networking, inter-task communications, periodic vs. "one shot" timing, POSIX threads, hardware abstraction layers, and program debugging. Abbott uses numerous real-world examples to show how implement a variety of embedded applications using Linux. Abbott discusses the strengths and weaknesses for embedded applications of different implementations of Linux, and he also examines the different real-time extensions for Linux. This book incorporates many programming exercises with solutions. All code listings are provided on the accompanying CD-ROM, as well as an electronic version of the text. *Fully describes the use of Linux operating system for embedded and real-time applications *Covers advanced topics such as device drivers, kernel implementation, POSIX threads *The CD accompanying the book includes an electronic version of the book as well as related software tools and code listings

With Kernel Projects for Linux, Professor Gary Nutt provides a series of 12 lab exercises that illustrate how to implement core operating system concepts in the increasingly popular Linux environment. The makeup of the manual allows readers to learn concepts on a modern operating system—Linux—while at the same time viewing the source code. This hands-on manual complements any core OS book by demonstrating how theoretical concepts are realized in Linux. Part I presents an overview of the Linux design, offering some insight into such topics as runtime organization and process, file, and device management. Part II consists of a graduated set of exercises where readers move from inspecting various aspects of the operating systems's internals to developing their own functions and data structures for the Linux kernel. This book is designed for programmers who need to learn the fundamentals of operating systems on a modern OS. The progressively harder exercises allow them to learn concepts in a hands-on setting.

In the kernel there are many mechanisms unused by you. You have not even realized that they exist. The Linux system kernel contains a range of mechanisms unused in standard installations. Many of them are used only in specialistic solutions. Many of them have their own equivalents in the user space. This micro-course presents various solutions used in the Linux kernel.

Summary: The Linux Kernel Book allows you to delve into the heart of this operating system by means of an in-depth treatment of the internal functioning of the kernel. Each chapter deals in detail with the system components, including: process management, memory management, IPC Systems V, signals, pipes, POSIX tty, file systems, loadable modules, and administration.

LPIC-1/CompTIA Linux+ Certification All-in-One Exam Guide, Exams LPIC-1/LXO-101 & LXO-102 Get complete coverage of all the objectives included on the LPIC-1 and CompTIA LXO-101 and LXO-102 exams inside this comprehensive resource. Written by a Linux expert and technology trainer, LPIC-1/CompTIA Linux+ Certification All-in-One Exam Guide includes learning objectives at the beginning of each chapter, exam tips, practice exam questions, and in-depth explanations. Designed to help you pass all three exams with ease, this comprehensive guide also serves as an essential on-the-job reference. **COVERS ALL EXAM TOPICS, INCLUDING HOW TO:** Work with the Linux shell Use the vi text editor Manage Linux files and directories Install Linux and manage the boot process Configure the graphical environment Manage software and hardware Manage users, groups, file systems, and processes Administer ownership, permissions, and quotas Write shell scripts Manage network settings and services Secure Linux and use encryption **CD-ROM FEATURES:** 150+ practice exam questions PDF copy of the book 50+ video training clips from the author Robb Tracy, CNE, CompTIA A+, CompTIA Network+, CompTIA Linux+, has designed and implemented technical training products and curricula for major hardware and software vendors, including Novell, Micron Technology, and Messaging Architects,

Inc. He has also served on industry-wide certification committees and is a cofounder of Nebo Technical Institute, Inc., a leading provider of information technology training and consulting. Robb is the author of CompTIA Linux+ Certification Study Guide and other books.

This document is designed to be a resource for those Linux users wishing to seek clarification on Linux/UNIX/POSIX related terms and jargon. At approximately 24000 definitions and two thousand pages it is one of the largest Linux related dictionaries currently available. Due to the rapid rate at which new terms are being created it has been decided that this will be an active project. We welcome input into the content of this document. At this moment in time half yearly updates are being envisaged. Please note that if you wish to find a 'Computer Dictionary' then see the 'Computer Dictionary Project' at <http://computerdictionary.tsf.org.za/> Searchable databases exist at locations such as: <http://www.swpearl.com/eng/scripts/dictionary/> (SWP) Sun Wah-PearL Linux Training and Development Centre is a centre of the Hong Kong Polytechnic University, established in 2000. Presently SWP is delivering professional grade Linux and related Open Source Software (OSS) technology training and consultant service in Hong Kong. SWP has an ambitious aim to promote the use of Linux and related Open Source Software (OSS) and Standards. The vendor independent positioning of SWP has been very well perceived by the market. Throughout the last couple of years, SWP becomes the Top Leading OSS training and service provider in Hong Kong. <http://www.geona.com/dictionary?b=> Geona, operated by Gold Vision Communications, is a new powerful search engine and internet directory, delivering quick and relevant results on almost any topic or subject you can imagine. The term "Geona" is an Italian and Hebrew name, meaning wisdom, exaltation, pride or majesty. We use our own database of spidered web sites and the Open Directory database, the same database which powers the core directory services for the Web's largest and most popular search engines and portals. Geona is spidering all domains listed in the non-adult part of the Open Directory and millions of additional sites of general interest to maintain a fulltext index of highly relevant web sites. <http://www.linuxdig.com/documents/dictionary.php> LINUXDIG.COM, "Yours News and Resource Site", LinuxDig.com was started in May 2001 as a hobby site with the original intention of getting the RFC's online and becoming an Open Source software link/download site. But since that time the site has evolved to become a RFC distribution site, linux news site and a locally written technology news site (with bad grammer :)) with focus on Linux while also containing articles about anything and everything we find interesting in the computer world. LinuxDig.Com contains about 20,000 documents and this number is growing everyday! <http://linux.about.com/library/glossary/blglossary.htm> Each month more than 20 million people visit About.com. Whether it be home repair and decorating ideas, recipes, movie trailers, or car buying tips, our Guides offer practical advice and solutions for every day life. Wherever you land on the new About.com, you'll find other content that is relevant to your interests. If you're looking for "How To" advice on planning to re-finish your deck, we'll also show you the tools you need to get the job done. If you've been to About before, we'll show you the latest updates, so you don't see the same thing twice. No matter where you are on About.com, or how you got here, you'll always find content that is relevant to your needs. Should you wish to possess your own localised searcheable version please make use of the available "dict", <http://www.dict.org/> version at the Linux Documentation Project home page, <http://www.tldp.org/> The author has decided to leave it up to readers to determine how to install and run it on their specific systems. An alternative form of the dictionary is available at:

<http://elibrary.fultus.com/covers/technical/linux/guides/Linux-Dictionary/cover.html> Fultus Corporation helps writers and companies to publish, promote, market, and sell books and eBooks. Fultus combines traditional self-publishing practices with modern technology to produce paperback and hardcover print-on-demand (POD) books and electronic books (eBooks). Fultus publishes works (fiction, non-fiction, science fiction, mystery, ...) by both published and unpublished authors. We enable you to self-publish easily and cost-effectively, creating your book as a print-ready paperback or hardcover POD book or as an electronic book (eBook) in multiple eBook's formats. You retain all rights to your work. We provide distribution to bookstores worldwide. And all at a fraction of the cost of traditional publishing. We also offer corporate publishing solutions that enable businesses to produce and deliver manuals and documentation more efficiently and economically. Our use of electronic delivery and print-on-demand technologies reduces printed inventory and saves time. Please inform the author as to whether you would like to create a database or an alternative form of the dictionary so that he can include you in this list. Also note that the author considers breaches of copyright to be extremely serious. He will pursue all claims to the fullest extent of the law.

Presents an overview of kernel configuration and building for version 2.6 of the Linux kernel.

OS X and iOS Kernel Programming combines essential operating system and kernel architecture knowledge with a highly practical approach that will help you write effective kernel-level code. You'll learn fundamental concepts such as memory management and thread synchronization, as well as the I/O Kit framework. You'll also learn how to write your own kernel-level extensions, such as device drivers for USB and Thunderbolt devices, including networking, storage and audio drivers. OS X and iOS Kernel Programming provides an incisive and complete introduction to the XNU kernel, which runs iPhones, iPads, iPods, and Mac OS X servers and clients. Then, you'll expand your horizons to examine Mac OS X and iOS system architecture. Understanding Apple's operating systems will allow you to write efficient device drivers, such as those covered in the book, using I/O Kit. With OS X and iOS Kernel Programming, you'll: Discover classical kernel architecture topics such as memory management and thread synchronization Become well-versed in the intricacies of the kernel development process by applying kernel debugging and profiling tools Learn how to deploy your kernel-level projects and how to successfully package them Write code that interacts with hardware devices Examine easy to understand example code that can also be used in your own projects Create network filters Whether you're a hobbyist, student, or professional engineer, turn to OS X and iOS Kernel Programming and find the knowledge you need to start developing

Linux Kernel Development details the design and implementation of the Linux kernel, presenting the content in a manner that is beneficial to those writing and developing kernel code, as well as to programmers seeking to better understand the operating system and become more efficient and productive in their coding. The book details the major subsystems and features of the Linux kernel, including its design, implementation, and interfaces. It covers the Linux kernel with both a practical and theoretical eye, which should appeal to readers with a variety of interests and needs. The author, a core kernel developer, shares valuable knowledge and experience on the 2.6 Linux kernel. Specific topics covered include process management, scheduling, time management and timers, the system call interface, memory addressing, memory management, the page cache, the VFS, kernel synchronization, portability concerns, and debugging techniques. This book covers the most interesting features of the Linux 2.6 kernel, including the CFS scheduler, preemptive kernel, block I/O layer, and I/O schedulers. The third edition of Linux Kernel Development includes new and updated material throughout the book: An all-new chapter on Page 4/6

interrupt handlers and bottom halves Extended coverage of virtual memory and memory allocation Tips on debugging the Linux kernel In-depth coverage of kernel synchronization and locking Useful insight into submitting kernel patches and working with the Linux kernel community

This brief considers the various stakeholders in today's mobile device ecosystem, and analyzes why widely-deployed hardware security primitives on mobile device platforms are inaccessible to application developers and end-users. Existing proposals are also evaluated for leveraging such primitives, and proves that they can indeed strengthen the security properties available to applications and users, without reducing the properties currently enjoyed by OEMs and network carriers. Finally, this brief makes recommendations for future research that may yield practical and deployable results.

The first comprehensive guide to discovering and preventing attacks on the Android OS As the Android operating system continues to increase its share of the smartphone market, smartphone hacking remains a growing threat. Written by experts who rank among the world's foremost Android security researchers, this book presents vulnerability discovery, analysis, and exploitation tools for the good guys. Following a detailed explanation of how the Android OS works and its overall security architecture, the authors examine how vulnerabilities can be discovered and exploits developed for various system components, preparing you to defend against them.

If you are a mobile device administrator, security researcher, Android app developer, or consultant responsible for evaluating Android security, you will find this guide is essential to your toolbox. A crack team of leading Android security researchers explain Android security risks, security design and architecture, rooting, fuzz testing, and vulnerability analysis Covers Android application building blocks and security as well as debugging and auditing Android apps Prepares mobile device administrators, security researchers, Android app developers, and security consultants to defend Android systems against attack Android Hacker's Handbook is the first comprehensive resource for IT professionals charged with smartphone security.

To thoroughly understand what makes Linux tick and why it's so efficient, you need to delve deep into the heart of the operating system--into the Linux kernel itself. The kernel is Linux--in the case of the Linux operating system, it's the only bit of software to which the term "Linux" applies. The kernel handles all the requests or completed I/O operations and determines which programs will share its processing time, and in what order. Responsible for the sophisticated memory management of the whole system, the Linux kernel is the force behind the legendary Linux efficiency. The new edition of Understanding the Linux Kernel takes you on a guided tour through the most significant data structures, many algorithms, and programming tricks used in the kernel. Probing beyond the superficial features, the authors offer valuable insights to people who want to know how things really work inside their machine. Relevant segments of code are dissected and discussed line by line. The book covers more than just the functioning of the code, it explains the theoretical underpinnings for why Linux does things the way it does. The new edition of the book has been updated to cover version 2.4 of the kernel, which is quite different from version 2.2: the virtual memory system is entirely new, support for multiprocessor systems is improved, and whole new classes of hardware devices have been added. The authors explore each new feature in detail. Other topics in the book include: Memory management including file buffering, process swapping, and Direct memory Access (DMA) The Virtual Filesystem and the Second Extended Filesystem Process creation and scheduling Signals, interrupts, and the essential interfaces to device drivers Timing Synchronization in the kernel Interprocess Communication (IPC) Program execution Understanding the Linux Kernel, Second Edition will acquaint you with all the inner workings of Linux, but is more than just an academic exercise. You'll learn what conditions bring out Linux's best performance, and you'll see how it meets the challenge of providing good system response during process scheduling, file access, and memory management in a wide variety of environments. If knowledge is power, then this book will help you make the most of your Linux system.

This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. Ubuntu Unleashed 2017 Edition is filled with unique and advanced information for everyone who wants to make the most of the Ubuntu Linux operating system, including the latest in Ubuntu mobile development. This new edition has been thoroughly updated by a long-time Ubuntu community leader to reflect the exciting new Ubuntu 16.10 and the forthcoming Ubuntu 17.04 and 17.08. Helmke presents up-to-the-minute introductions to Ubuntu's key productivity and Web development tools, programming languages, hardware support, and more. This book will now be part of CUPs (the Content Update Program). Former Ubuntu Forum administrator Matthew Helmke covers all you need to know about Ubuntu 16.10 installation, configuration, productivity, multimedia, development, system administration, server operations, networking, virtualization, security, DevOps, and more—including intermediate-to-advanced techniques you won't find in any other book. Helmke presents up-to-the-minute introductions to Ubuntu's key productivity and Web development tools, programming languages, hardware support, and more. You'll find new or improved coverage of Ubuntu's Unity interface, various types of servers, software repositories, database options, virtualization and cloud services, development tools, monitoring, troubleshooting, Ubuntu's push into mobile and other touch screen devices, and much more

My little kernel. The micro-course describes most features of the Linux kernel, process management, the mechanism of creating processes and the architecture of the memory manager.

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.

Uses the Running Operation as the Main Thread Difficulty in understanding an operating system (OS) lies not in the technical aspects, but in the complex relationships inside the operating systems. **The Art of Linux Kernel Design: Illustrating the Operating System Design Principle and Implementation** addresses this complexity. Written from the perspective of the designer of an operating system, this book tackles important issues and practical problems on how to understand an operating system completely and systematically. It removes the mystery, revealing operating system design guidelines, explaining the BIOS code directly related to the operating system, and simplifying the relationships and guiding ideology behind it all. Based on the Source Code of a Real Multi-Process Operating System Using the 0.11 edition source code as a representation of the Linux basic design, the book illustrates the real states of an operating system in actual operations. It provides a complete, systematic analysis of the operating system source code, as well as a direct and complete understanding of the real operating system run-time structure. The author includes run-time memory structure diagrams, and an accompanying essay to help readers grasp the dynamics behind Linux and similar software systems. Identifies through diagrams the location of the key operating system data structures that lie in the memory Indicates through diagrams the current operating status information which helps users understand the interrupt state, and left time slice of processes Examines the relationship between process and memory, memory and file, file and process, and the kernel Explores the essential association, preparation, and transition, which is the vital part of operating system **Develop a System of Your Own** This text offers an in-depth study on mastering the operating system, and provides an important prerequisite for designing a whole new operating system.

Content Description #Includes bibliographical references and index.

A Guide to Kernel Exploitation: Attacking the Core discusses the theoretical techniques and approaches needed to develop reliable and effective kernel-level exploits, and applies them to different operating systems, namely, UNIX derivatives, Mac OS X, and Windows. Concepts and tactics are presented categorically so that even when a specifically detailed vulnerability has been patched, the foundational information provided will help hackers in writing a newer, better attack; or help pen testers, auditors, and the like develop a more concrete design and defensive structure. The book is organized into four parts. Part I introduces the kernel and sets out the theoretical basis on which to build the rest of the book. Part II focuses on different operating systems and describes exploits for them that target various bug classes. Part III on remote kernel exploitation analyzes the effects of the remote scenario and presents new techniques to target remote issues. It includes a step-by-step analysis of the development of a reliable, one-shot, remote exploit for a real vulnerability a bug affecting the SCTP subsystem found in the Linux kernel. Finally, Part IV wraps up the analysis on kernel exploitation and looks at what the future may hold. Covers a range of operating system families — UNIX derivatives, Mac OS X, Windows Details common scenarios such as generic memory corruption (stack overflow, heap overflow, etc.) issues, logical bugs and race conditions Delivers the reader from user-land exploitation to the world of kernel-land (OS) exploits/attacks, with a particular focus on the steps that lead to the creation of successful techniques, in order to give to the reader something more than just a set of tricks

Database and information systems technologies have been rapidly evolving in several directions over the past years. New types and kinds of data, new types of applications and information systems to support them raise diverse challenges to be addressed. The so-called big data challenge, streaming data management and processing, social networks and other complex data analysis, including semantic reasoning into information systems supporting for instance trading, negotiations, and bidding mechanisms are just some of the emerging research topics. This volume contains papers contributed by six workshops: ADBIS Workshop on GPUs in Databases (GID 2012), Mining Complex and Stream Data (MCSD'12), International Workshop on Ontologies meet Advanced Information Systems (OAIIS'2012), Second Workshop on Modeling Multi-commodity Trade: Data models and processing (MMT'12), 1st ADBIS Workshop on Social Data Processing (SDP'12), 1st ADBIS Workshop on Social and Algorithmic Issues in Business Support (SAIBS), and the Ph.D. Consortium associated with the ADBIS 2012 conference that report on the recent developments and an ongoing research in the aforementioned areas.

For the past 20 years, UNIX insiders have cherished and zealously guarded pirated photocopies of this manuscript, a "hacker trophy" of sorts. Now legal (and legible) copies are available. An international "who's who" of UNIX wizards, including Dennis Ritchie, have contributed essays extolling the merits and importance of this underground classic. "The Second Edition of Security Strategies in Linux Platforms and Applications opens with a discussion of risks, threats, and vulnerabilities. Part 2 discusses how to take advantage of the layers of security and the modules associated with AppArmor and SELinux. Part 3 looks at the use of open source and proprietary tools when building a layered security strategy"--

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