

Online Library The Linux Programming Interface
A Linux And Unix System Programming
Handbook

*The Linux Programming
Interface A Linux And Unix
System Programming Handbook*

A detailed introduction to the C programming language for experienced programmers. The world runs on code written in the C programming language, yet most schools begin the curriculum with Python or Java. Effective C bridges this gap and brings C into the modern era--covering the modern C17 Standard as well as potential C2x features. With the aid of this

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instant classic, you'll soon be writing professional, portable, and secure C programs to power robust systems and solve real-world problems. Robert C. Seacord introduces C and the C Standard Library while addressing best practices, common errors, and open debates in the C community. Developed together with other C Standards committee experts, Effective C will teach you how to debug, test, and analyze C programs. You'll benefit from Seacord's concise explanations of C language constructs and behaviors, and from his 40 years of coding experience. You'll learn:

- How to identify and handle

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undefined behavior in a C program • The range and representations of integers and floating-point values • How dynamic memory allocation works and how to use nonstandard functions • How to use character encodings and types • How to perform I/O with terminals and filesystems using C Standard streams and POSIX file descriptors • How to understand the C compiler's translation phases and the role of the preprocessor • How to test, debug, and analyze C programs Effective C will teach you how to write professional, secure, and portable C code that will stand the test of time and help strengthen the

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foundation of the computing world.

Deep learning is often viewed as the exclusive domain of math PhDs and big tech companies. But as this hands-on guide demonstrates, programmers comfortable with Python can achieve impressive results in deep learning with little math background, small amounts of data, and minimal code. How? With fastai, the first library to provide a consistent interface to the most frequently used deep learning applications. Authors Jeremy Howard and Sylvain Gugger, the creators of fastai, show you how to train a model on a wide range of tasks using fastai and

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PyTorch. You'll also dive progressively further into deep learning theory to gain a complete understanding of the algorithms behind the scenes. Train models in computer vision, natural language processing, tabular data, and collaborative filtering Learn the latest deep learning techniques that matter most in practice Improve accuracy, speed, and reliability by understanding how deep learning models work Discover how to turn your models into web applications Implement deep learning algorithms from scratch Consider the ethical implications of your work Gain insight from the foreword by PyTorch

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cofounder, Soumith Chintala

For Computer Systems, Computer Organization and Architecture courses in CS, EE, and ECE departments. Few students studying computer science or computer engineering will ever have the opportunity to build a computer system. On the other hand, most students will be required to use and program computers on a near daily basis. Computer Systems: A Programmer's Perspective introduces the important and enduring concepts that underlie computer systems by showing how these ideas affect the correctness, performance, and utility of

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application programs. The text's hands-on approach (including a comprehensive set of labs) helps students understand the under-the-hood operation of a modern computer system and prepares them for future courses in systems topics such as compilers, computer architecture, operating systems, and networking.

Get up and running with system programming concepts in Linux Key Features Acquire insight on Linux system architecture and its programming interfaces Get to grips with core concepts such as process management, signalling and

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*pthread*Packed with industry best practices and dozens of code examplesBook Description The Linux OS and its embedded and server applications are critical components of today's software infrastructure in a decentralized, networked universe. The industry's demand for proficient Linux developers is only rising with time. Hands-On System Programming with Linux gives you a solid theoretical base and practical industry-relevant descriptions, and covers the Linux system programming domain. It delves into the art and science of Linux application programming— system architecture, process

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memory and management, signaling, timers, pthreads, and file IO. This book goes beyond the use API X to do Y approach; it explains the concepts and theories required to understand programming interfaces and design decisions, the tradeoffs made by experienced developers when using them, and the rationale behind them. Troubleshooting tips and techniques are included in the concluding chapter. By the end of this book, you will have gained essential conceptual design knowledge and hands-on experience working with Linux system programming interfaces. What you will learn Explore the theoretical

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underpinnings of Linux system

architecture Understand why modern OSes use virtual

memory and dynamic memory APIs Get to grips with

dynamic memory issues and effectively debug

them Learn key concepts and powerful system APIs

related to process management Effectively perform

file IO and use signaling and timers Deeply

understand multithreading concepts, pthreads APIs,

synchronization and scheduling Who this book is for

Hands-On System Programming with Linux is for

Linux system engineers, programmers, or anyone

who wants to go beyond using an API set to

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understanding the theoretical underpinnings and concepts behind powerful Linux system programming APIs. To get the most out of this book, you should be familiar with Linux at the user-level logging in, using shell via the command line interface, the ability to use tools such as find, grep, and sort. Working knowledge of the C programming language is required. No prior experience with Linux systems programming is assumed.

Linux in a Nutshell

Effective C

Hands-On System Programming with Linux

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Programming with POSIX Threads

Linux Programming For Dummies

The Linux Programming Interface

"Linux Clustering" is the premier resource for system administrators wishing to implement clustering solutions on the many types of Linux systems. It guides Linux Administrators through difficult tasks while offering helpful tips and tricks.

Systems performance analysis and tuning lead to a better end-user experience and lower costs, especially for cloud computing environments that charge by the OS instance.

Systems Performance, 2nd Edition covers concepts, strategy,

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tools, and tuning for operating systems and applications, using Linux-based operating systems as the primary example. World-renowned systems performance expert Brendan Gregg summarizes relevant operating system, hardware, and application theory to quickly get professionals up to speed even if they've never analyzed performance before, and to refresh and update advanced readers' knowledge. Gregg illuminates the latest tools and techniques, including extended BPF, showing how to get the most out of your systems in cloud, web, and large-scale enterprise environments. He covers these and other key topics: Hardware, kernel, and application internals, and how they perform Methodologies for rapid performance analysis of complex systems Optimizing

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CPU, memory, file system, disk, and networking usage
Sophisticated profiling and tracing with perf, Ftrace, and BPF (BCC and bpftrace)
Performance challenges associated with cloud computing hypervisors
Benchmarking more effectively
Fully updated for current Linux operating systems and environments, *Systems Performance, 2nd Edition* addresses issues that apply to any computer system. The book will be a go-to reference for many years to come and recommended reading at many tech companies, like its predecessor first edition.

The *Art of UNIX Programming* poses the belief that understanding the unwritten UNIX engineering tradition and mastering its design patterns will help programmers of all

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stripes to become better programmers. This book attempts to capture the engineering wisdom and design philosophy of the UNIX, Linux, and Open Source software development community as it has evolved over the past three decades, and as it is applied today by the most experienced programmers. Eric Raymond offers the next generation of "hackers" the unique opportunity to learn the connection between UNIX philosophy and practice through careful case studies of the very best UNIX/Linux programs.

Get an introduction into the Vala programming language and learn about its syntax, semantics, and idioms. Do you want to boost your productivity? Are you interested in a programming language that combines the efficiency of a scripting language

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with the performance of a compiled language? Did you always want to write GTK+ or GNOME programs, but hate C with a passion? Read this book and learn Vala! Introducing Vala Programming starts from Hello World and goes up to graphical user interfaces using GTK+, covering DBus interprocess communication, network programming, Linux specifics, and more. You'll learn how to leverage external libraries and enhance Vala by writing bindings to new libraries. What You Will Learn Discover the Vala programming language and how to use it to boost your productivity Use Vala syntax and semantics Write object-oriented code with Vala Work with DBus Implement networking with Vala Integrate and use external libraries with

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bindings and libgusb Who This Book Is For People with basic programming experience in any imperative programming language.

A Language and Techniques to Boost Productivity

Computer Systems

C Programming

A comprehensive guide to kernel internals, writing kernel modules, and kernel synchronization

Enterprise and the Cloud

Operating Systems

Best-selling guide to the inner workings of the Linux operating system with over 50,000 copies sold since its original release in 2014. Linux for the Superuser Unlike

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some operating systems, Linux doesn't try to hide the important bits from you—it gives you full control of your computer. But to truly master Linux, you need to understand its internals, like how the system boots, how networking works, and what the kernel actually does. In this third edition of the bestselling *How Linux Works*, author Brian Ward peels back the layers of this well-loved operating system to make Linux internals accessible. This edition has been thoroughly updated and expanded with added coverage of Logical Volume Manager (LVM), virtualization, and containers. You'll learn: How Linux boots, from boot loaders to `init` (`systemd`) How the kernel manages devices, device

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drivers, and processes How networking, interfaces, firewalls, and servers work How development tools work and relate to shared libraries How to write effective shell scripts You'll also explore the kernel and examine key system tasks inside user-space processes, including system calls, input and output, and filesystem maintenance. With its combination of background, theory, real-world examples, and thorough explanations, How Linux Works, 3rd Edition will teach you what you need to know to take control of your operating system. NEW TO THIS EDITION: Hands-on coverage of the LVM, journald logging system, and IPv6 Additional chapter on virtualization, featuring containers and

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cgroups Expanded discussion of systemd Covers
systemd-based installations

This book explains in a clear and coherent manner how Unix works, how to understand existing Unix programs, and how to design and create new Unix programs. The book is organized by subsystem, each presented in visual terms and explained using vivid metaphors. It breaks the information into manageable parts that can be presented, explained, and mastered. By using case studies and an extremely reader-friendly manner to illustrate complex ideas and concepts, the book covers the basics of systems programming, users, files and manuals, how to read a directory, using 1S, writing PWD,

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studying STTY, writing a video game, studying SH, environment and shell variables, I/O redirection and pipes, servers and sockets, writing a web server, license servers, and concurrent functions. For Unix system administrators and programmers, network programmers, and others who have used other operating systems and need to learn Unix programming to expand their skill sets.

“As an author, editor, and publisher, I never paid much attention to the competition—except in a few cases. This is one of those cases. The UNIX System Administration Handbook is one of the few books we ever measured ourselves against.” —Tim O’Reilly, founder of O’Reilly

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Media “This edition is for those whose systems live in the cloud or in virtualized data centers; those whose administrative work largely takes the form of automation and configuration source code; those who collaborate closely with developers, network engineers, compliance officers, and all the other worker bees who inhabit the modern hive.” —Paul Vixie, Internet Hall of Fame-recognized innovator and founder of ISC and Farsight Security “This book is fun and functional as a desktop reference. If you use UNIX and Linux systems, you need this book in your short-reach library. It covers a bit of the systems’ history but doesn’t bloviate. It’s just straightforward information delivered in a colorful and

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memorable fashion.” —Jason A. Nunnelley UNIX® and Linux® System Administration Handbook, Fifth Edition, is today’s definitive guide to installing, configuring, and maintaining any UNIX or Linux system, including systems that supply core Internet and cloud infrastructure. Updated for new distributions and cloud environments, this comprehensive guide covers best practices for every facet of system administration, including storage management, network design and administration, security, web hosting, automation, configuration management, performance analysis, virtualization, DNS, security, and the management of IT service organizations. The authors—world-class, hands-

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on technologists—offer indispensable new coverage of cloud platforms, the DevOps philosophy, continuous deployment, containerization, monitoring, and many other essential topics. Whatever your role in running systems and networks built on UNIX or Linux, this conversational, well-written guide will improve your efficiency and help solve your knottiest problems. Reveals and illustrates the awesome power and flexibility of the command line, and the design and usage philosophies that support those traits. This understanding of how to extract the most from the Linux command line can help you become a better SysAdmin. Understand why many things in the Linux and Unix

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worlds are done as they are, and how to apply the Linux Philosophy to working as a SysAdmin. The original Unix/Linux Philosophy presented foundational and functional tenets - rules, guidelines, and procedural methods - that worked well. However, it was intended for the developers of those operating systems. Although System Administrators could apply many of the tenets to their daily work, many important tenets were missing. Over the years that David Both has been working with Linux and Unix, he has formulated his own philosophy – one which applies more directly to the everyday life of the System Administrator. This book defines a philosophy, and then illuminates the practical aspects of

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that philosophy with real-world experiments you can perform. Inspired by David's real mentors, and dedicated to them, The Linux Philosophy for System Administrators is a mentor to SysAdmins everywhere; remember - "If you fail you learn." What You Will Learn Apply the Linux philosophy to working as a SysAdmin Unlock the power of the knowledge you already have Fully understand and access the vast power of the command line Review the power of Linux as a function of the philosophies that built it Who This Book Is For If you want to learn the secrets that make the best Linux SysAdmins powerful far beyond that of mere mortals; if you want to understand the concepts that unlock those secrets; if you want to be the

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SysAdmin that everyone else turns to when the bytes hit the fan – then this book is for you.

Unix Power Tools

Understanding Unix/Linux Programming

Understanding the Linux Kernel

Talking Directly to the Kernel and C Library

Advanced Programming in the UNIX Environment

By its very nature, Unix is a "power tools" environment. Even beginning Unix users quickly grasp that immense power exists in shell programming, aliases and history mechanisms, and

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various editing tools. Nonetheless, few users ever really master the power available to them with Unix. There is just too much to learn! Unix Power Tools, Third Edition, literally contains thousands of tips, scripts, and techniques that make using Unix easier, more effective, and even more fun. This book is organized into hundreds of short articles with plenty of references to other sections that keep you flipping from new article to new article. You'll find the book hard to put down as you uncover one interesting tip after another. With the growing popularity of Linux and the advent of Mac OS X, Unix has

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metamorphosed into something new and exciting. With Unix no longer perceived as a difficult operating system, more and more users are discovering its advantages for the first time. The latest edition of this best-selling favorite is loaded with advice about almost every aspect of Unix, covering all the new technologies that users need to know. In addition to vital information on Linux, Mac OS X, and BSD, Unix Power Tools, Third Edition, now offers more coverage of bcash, zsh, and new shells, along with discussions about modern utilities and applications. Several sections focus on security and Internet

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access, and there is a new chapter on access to Unix from Windows, addressing the heterogeneous nature of systems today. You'll also find expanded coverage of software installation and packaging, as well as basic information on Perl and Python. The book's accompanying web site provides some of the best software available to Unix users, which you can download and add to your own set of power tools. Whether you are a newcomer or a Unix power user, you'll find yourself thumbing through the gold mine of information in this new edition of Unix Power Tools to add to your store of knowledge. Want to try

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something new? Check this book first, and you're sure to find a tip or trick that will prevent you from learning things the hard way.

Harness the power of Linux to create versatile and robust embedded solutions
Key Features
Learn how to develop and configure robust embedded Linux devices
Explore the new features of Linux 5.4 and the Yocto Project 3.1 (Dunfell)
Discover different ways to debug and profile your code in both user space and the Linux kernel
Book Description
If you're looking for a book that will demystify embedded Linux, then you've come to the right place. Mastering

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Embedded Linux Programming is a fully comprehensive guide that can serve both as means to learn new things or as a handy reference. The first few chapters of this book will break down the fundamental elements that underpin all embedded Linux projects: the toolchain, the bootloader, the kernel, and the root filesystem. After that, you will learn how to create each of these elements from scratch and automate the process using Buildroot and the Yocto Project. As you progress, the book will show you how to implement an effective storage strategy for flash memory chips and install updates

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to a device remotely once it's deployed. You'll also learn about the key aspects of writing code for embedded Linux, such as how to access hardware from apps, the implications of writing multi-threaded code, and techniques to manage memory in an efficient way. The final chapters demonstrate how to debug your code, whether it resides in apps or in the Linux kernel itself. You'll also cover the different tracers and profilers that are available for Linux so that you can quickly pinpoint any performance bottlenecks in your system. By the end of this Linux book, you'll be able to create efficient and secure

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embedded devices using Linux. What you will learn
Use Buildroot and the Yocto Project to create embedded Linux systems
Troubleshoot BitBake build failures and streamline your Yocto development workflow
Update IoT devices securely in the field using Mender or balena
Prototype peripheral additions by reading schematics, modifying device trees, soldering breakout boards, and probing pins with a logic analyzer
Interact with hardware without having to write kernel device drivers
Divide your system up into services supervised by BusyBox
runit
Debug devices remotely using GDB and

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measure the performance of systems using tools such as perf, ftrace, eBPF, and CallgrindWho this book is for If you're a systems software engineer or system administrator who wants to learn how to implement Linux on embedded devices, then this book is for you. It's also aimed at embedded systems engineers accustomed to programming for low-power microcontrollers, who can use this book to help make the leap to high-speed systems on chips that can run Linux. Anyone who develops hardware that needs to run Linux will find something useful in this book – but before you get started, you'll need a

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solid grasp on POSIX standard, C programming, and shell scripting.

Provides instructions for writing C code to create games and mobile applications using the new C11 standard.

Find solutions to all your problems related to Linux system programming using practical recipes for developing your own system programs
Key Features
Develop a deeper understanding of how Linux system programming works
Gain hands-on experience of working with different Linux projects with the help of practical examples
Learn how to

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develop your own programs for LinuxBook

Description Linux is the world's most popular open source operating system (OS). Linux System Programming Techniques will enable you to extend the Linux OS with your own system programs and communicate with other programs on the system. The book begins by exploring the Linux filesystem, its basic commands, built-in manual pages, the GNU compiler collection (GCC), and Linux system calls. You'll then discover how to handle errors in your programs and will learn to catch errors and print relevant information about them. The book takes you

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through multiple recipes on how to read and write files on the system, using both streams and file descriptors. As you advance, you'll delve into forking, creating zombie processes, and daemons, along with recipes on how to handle daemons using systemd. After this, you'll find out how to create shared libraries and start exploring different types of interprocess communication (IPC). In the later chapters, recipes on how to write programs using POSIX threads and how to debug your programs using the GNU debugger (GDB) and Valgrind will also be covered. By the end of this Linux book, you

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will be able to develop your own system programs for Linux, including daemons, tools, clients, and filters. What you will learnDiscover how to write programs for the Linux system using a wide variety of system callsDelve into the working of POSIX functionsUnderstand and use key concepts such as signals, pipes, IPC, and process managementFind out how to integrate programs with a Linux systemExplore advanced topics such as filesystem operations, creating shared libraries, and debugging your programsGain an overall understanding of how to debug your programs using ValgrindWho this

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book is for This book is for anyone who wants to develop system programs for Linux and gain a deeper understanding of the Linux system. The book is beneficial for anyone who is facing issues related to a particular part of Linux system programming and is looking for specific recipes or solutions.

The Linux Programming Interface國際中文版

POSIX.4 Programmers Guide

Systems Performance

Embedded Linux System Design and Development

Three Easy Pieces

Beginning Linux?Programming

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The Linux Programming Interface
A Linux and UNIX
System Programming Handbook
No Starch Press

Linux(r) Programming For Dummies(r) is the fast and easy way to get up-to speed on designing, developing, debugging programs on the Linux platform. For a sample from the book go to:

www.dummies.com/extras/linuxprog.html

UNIX, UNIX LINUX & UNIX TCL/TK. Write software that makes the most effective use of the Linux system including the kernel and core system libraries. The majority of both Unix and Linux code is still written at system level, and this book helps you focus on everything

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above the kernel, where applications such as Apache, bash, cp, vim, Emacs, gcc, gdb, glibc, ls, mv, and X exist. Written primarily for engineers looking to program at the low level, this updated edition of Linux System Programming gives you an understanding of core internals that makes for better code, no matter where it appears in the stack. -- Provided by publisher. "This book is organized around three concepts fundamental to OS construction: virtualization (of CPU and memory), concurrency (locks and condition variables), and persistence (disks, RAIDS, and file systems"--Back cover.

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Advanced Linux Programming

Become a proficient Linux system programmer using expert recipes and techniques

The Linux Command Line

The Linux Command Line, 2nd Edition

What Every Superuser Should Know

The Linux Philosophy for SysAdmins

Based upon the authors' experience in designing and deploying an embedded Linux system with a variety of applications,

Embedded Linux System Design and

Development contains a full embedded Linux

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system development roadmap for systems architects and software programmers. Explaining the issues that arise out of the use of Linux in embedded systems, the book facilitates movement to embedded Linux from traditional real-time operating systems, and describes the system design model containing embedded Linux. This book delivers practical solutions for writing, debugging, and profiling applications and drivers in embedded Linux, and for understanding Linux BSP architecture. It enables you to understand: various drivers

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such as serial, I2C and USB gadgets; uClinux architecture and its programming model; and the embedded Linux graphics subsystem. The text also promotes learning of methods to reduce system boot time, optimize memory and storage, and find memory leaks and corruption in applications. This volume benefits IT managers in planning to choose an embedded Linux distribution and in creating a roadmap for OS transition. It also describes the application of the Linux licensing model in commercial products.

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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

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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

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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,

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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

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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.

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If you're a Linux kernel and driver developer looking to overcome frequent and common kernel development issues, or understand kernel internals, you'll find plenty of useful information. You'll need a solid foundation of Linux CLI and C programming before you can jump in. A True Textbook for an Introductory Course, System Administration Course, or a Combination Course Linux with Operating System Concepts, Second Edition merges conceptual operating system (OS) and Unix/Linux topics into one cohesive

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textbook for undergraduate students. The book can be used for a one- or two-semester course on Linux or Unix. It is complete with review sections, problems, definitions, concepts and relevant introductory material, such as binary and Boolean logic, OS kernels and the role of the CPU and memory hierarchy. Details for Introductory and Advanced Users The book covers Linux from both the user and system administrator positions. From a user perspective, it emphasizes command-line interaction. From a system administrator

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perspective, the text reinforces shell scripting with examples of administration scripts that support the automation of administrator tasks. Thorough Coverage of Concepts and Linux Commands The author incorporates OS concepts not found in most Linux/Unix textbooks, including kernels, file systems, storage devices, virtual memory and process management. He also introduces computer science topics, such as computer networks and TCP/IP, interpreters versus compilers, file compression, file system integrity through

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backups, RAID and encryption technologies, booting and the GNUs C compiler. New in this Edition The book has been updated to systemd Linux and the newer services like Cockpit, NetworkManager, firewalld and journald. This edition explores Linux beyond CentOS/Red Hat by adding detail on Debian distributions. Content across most topics has been updated and improved. You've experienced the shiny, point-and-click surface of your Linux computer—now dive below and explore its depths with the power of the command line. The Linux

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Command Line takes you from your very first terminal keystrokes to writing full programs in Bash, the most popular Linux shell. Along the way you'll learn the timeless skills handed down by generations of gray-bearded, mouse-shunning gurus: file navigation, environment configuration, command chaining, pattern matching with regular expressions, and more. In addition to that practical knowledge, author William Shotts reveals the philosophy behind these tools and the rich heritage that your desktop Linux

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

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

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cut, paste, grep, patch, and sed Once you overcome your initial "shell shock," you'll find that the command line is a natural and expressive way to communicate with your computer. Just don't be surprised if your mouse starts to gather dust. A featured resource in the Linux Foundation's "Evolution of a SysAdmin" Linux Kernel Development Professional Linux Programming How Linux Works, 2nd Edition A Programmer's Perspective The Art of UNIX Programming

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Beginning Linux Programming

This is an expert guide to the 2.6 Linux Kernel's most important component: the Virtual Memory Manager.

Written in an informal, informative style, this authoritative guide goes way beyond the standard reference manual. It discusses each of the POSIX.4 facilities and what they mean, why and when you would use each of these facilities, and trouble spots you might run into. c.

Unlike some operating systems, Linux doesn't try to hide the important bits from you—it gives you full control of your computer. But to truly master Linux, you need to understand its

internals, like how the system boots, how networking works, and what the kernel actually does. In this completely revised second edition of the perennial best seller How Linux Works, author Brian Ward makes the concepts behind Linux internals accessible to anyone curious about the inner workings of the operating system. Inside, you'll find the kind of knowledge that normally comes from years of experience doing things the hard way. You'll learn: -How Linux boots, from boot loaders to init implementations (systemd, Upstart, and System V) -How the kernel manages devices, device drivers, and processes -How networking,

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interfaces, firewalls, and servers work -How development tools work and relate to shared libraries -How to write effective shell scripts You'll also explore the kernel and examine key system tasks inside user space, including system calls, input and output, and filesystems. With its combination of background, theory, real-world examples, and patient explanations, How Linux Works will teach you what you need to know to solve pesky problems and take control of your operating system.

The Linux Programming Interface (TLPI) is the definitive guide to the Linux and UNIX programming interface—the interface employed

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by nearly every application that runs on a Linux or UNIX system. In this authoritative work, Linux programming expert Michael Kerrisk provides detailed descriptions of the system calls and library functions that you need in order to master the craft of system programming, and accompanies his explanations with clear, complete example programs. You'll find descriptions of over 500 system calls and library functions, and more than 200 example programs, 88 tables, and 115 diagrams. You'll learn how to:

- Read and write files efficiently**
- Use signals, clocks, and timers**
- Create processes and execute programs**
- Write**

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secure programs -Write multithreaded programs using POSIX threads -Build and use shared libraries -Perform interprocess communication using pipes, message queues, shared memory, and semaphores -Write network applications with the sockets API While The Linux Programming Interface covers a wealth of Linux-specific features, including epoll, inotify, and the /proc file system, its emphasis on UNIX standards (POSIX.1-2001/SUSv3 and POSIX.1-2008/SUSv4) makes it equally valuable to programmers working on other UNIX platforms. The Linux Programming Interface is the most

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comprehensive single-volume work on the Linux and UNIX programming interface, and a book that's destined to become a new classic.

Linux Kernel Programming

Create fast and reliable embedded solutions with Linux 5.4 and the Yocto Project 3.1

(Dunfell)

UNIX and Linux System Administration Handbook

**And Everyone Who Wants To Be One
A Complete Introduction**

Linux Clustering

The revision of the definitive guide to Unix system programming is now available in a more

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portable format.

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

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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

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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

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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.

Linux is a Unix-like operating system that is

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one of the most popular open source operating systems on the planet. It is the heart of countless software products, from enterprise operating systems like Android and Red Hat Enterprise Linux, to hobbyist projects on a wide range of devices. Linux by Jason Cannon will teach you the basics of interacting with Linux, such as viewing and editing files and directories through the command line, and how to modify permissions. More advanced topics covered include I/O streams, sorting and comparing files and directories, and installing additional software. This updated and expanded second edition of Book provides

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a user-friendly introduction to the subject, Taking a clear structural framework, it guides the reader through the subject's core elements. A flowing writing style combines with the use of illustrations and diagrams throughout the text to ensure the reader understands even the most complex of concepts. This succinct and enlightening overview is a required reading for all those interested in the subject . We hope you find this book useful in shaping your future career & Business.

Describes the concepts of programming with Linux, covering such topics as shell

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programming, file structure, managing memory, using MySQL, debugging, processes and signals, and GNOME.

The Linux Programmer's Toolbox

Understanding the Linux Virtual Memory Manager

Absolute Beginner's Guide

A Linux and UNIX System Programming Handbook

Linux System Programming Techniques

A Linux and Unix System Programming

You've experienced the shiny, point-and-click surface of your Linux computer—now dive below and explore its depths with the power of the command line. The Linux Command Line

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takes you from your very first terminal keystrokes to writing full programs in Bash, the most popular Linux shell (or command line). Along the way you'll learn the timeless skills handed down by generations of experienced, mouse-shunning gurus: file navigation, environment configuration, command chaining, pattern matching with regular expressions, and more. In addition to that practical knowledge, author William Shotts reveals the philosophy behind these tools and the rich heritage that your desktop Linux machine has inherited from Unix supercomputers of yore. As you make your way through the book's short, easily-digestible

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chapters, you'll learn how to: Create and delete files, directories, and symlinks Administer your system, including networking, package installation, and process management Use standard input and output, redirection, and pipelines Edit files with Vi, the world's most popular text editor Write shell scripts to automate common or boring tasks Slice and dice text files with cut, paste, grep, patch, and sed Once you overcome your initial "shell shock," you'll find that the command line is a natural and expressive way to communicate with your computer. Just don't be surprised if your mouse starts to gather dust.

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Beginning Linux Programming, Fourth Edition continues its unique approach to teaching UNIX programming in a simple and structured way on the Linux platform. Through the use of detailed and realistic examples, students learn by doing, and are able to move from being a Linux beginner to creating custom applications in Linux. The book introduces fundamental concepts beginning with the basics of writing Unix programs in C, and including material on basic system calls, file I/O, interprocess communication (for getting programs to work together), and shell programming. Parallel to this, the book introduces the toolkits and

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libraries for working with user interfaces, from simpler terminal mode applications to X and GTK+ for graphical user interfaces. Advanced topics are covered in detail such as processes, pipes, semaphores, socket programming, using MySQL, writing applications for the GNOME or the KDE desktop, writing device drivers, POSIX Threads, and kernel programming for the latest Linux Kernel.

Contains an introduction to the operating system with detailed documentation on commands, utilities, programs, system configuration, and networking.

This book is broken into four primary sections

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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

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insertion and removal, key Linux projects (such as Project Utopia), and the internationalization capabilities present in the GNOME desktop

How Linux Works, 3rd Edition

Explore Linux system programming interfaces, theory, and practice

Linux with Operating System Concepts

Building and Maintaining Linux Clusters

Mastering Embedded Linux Programming

Introducing Vala Programming

This is the eBook version of the printed book. If the print book includes a CD-ROM, this content is not

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included within the eBook version.

Advanced Linux Programming is divided into two parts. The first covers generic UNIX system services, but with a particular eye towards Linux specific information. This portion of the book will be of use even to advanced programmers who have worked with other Linux systems since it will cover Linux specific details and differences. For programmers without UNIX experience, it will be even more valuable. The second

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section covers material that is entirely Linux specific. These are truly advanced topics, and are the techniques that the gurus use to build great applications. While this book will focus mostly on the Application Programming Interface (API) provided by the Linux kernel and the C library, a preliminary introduction to the development tools available will allow all who purchase the book to make immediate use of Linux.

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Master the Linux Tools That Will Make You a More Productive, Effective Programmer The Linux Programmer's Toolbox helps you tap into the vast collection of open source tools available for GNU/Linux. Author John Fusco systematically describes the most useful tools available on most GNU/Linux distributions using concise examples that you can easily modify to meet your needs. You'll start by learning the basics of downloading,

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building, and installing open source projects. You'll then learn how open source tools are distributed, and what to look for to avoid wasting time on projects that aren't ready for you. Next, you'll learn the ins and outs of building your own projects. Fusco also demonstrates what to look for in a text editor, and may even show you a few new tricks in your favorite text editor. You'll enhance your knowledge of the Linux kernel by learning how it

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interacts with your software. Fusco walks you through the fundamentals of the Linux kernel with simple, thought-provoking examples that illustrate the principles behind the operating system. Then he shows you how to put this knowledge to use with more advanced tools. He focuses on how to interpret output from tools like sar, vmstat, valgrind, strace, and apply it to your application; how to take advantage of various programming APIs to develop

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your own tools; and how to write code that monitors itself. Next, Fusco covers tools that help you enhance the performance of your software. He explains the principles behind today's multicore CPUs and demonstrates how to squeeze the most performance from these systems. Finally, you'll learn tools and techniques to debug your code under any circumstances. Coverage includes Maximizing productivity with editors, revision control tools, source code

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browsers, and "beautifiers"

Interpreting the kernel: what your tools are telling you
Understanding processes—and the tools available for managing them
Tracing and resolving application bottlenecks with gprof and valgrind
Streamlining and automating the documentation process
Rapidly finding help, solutions, and workarounds when you need them
Optimizing program code with sar, vmstat, iostat, and other tools

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Debugging IPC with shell commands:
signals, pipes, sockets, files, and IPC
objects Using printf, gdb, and other
essential debugging tools Foreword
Preface Acknowledgments About the
Author Chapter 1 Downloading and
Installing Open Source Tools Chapter 2
Building from Source Chapter 3 Finding
Help Chapter 4 Editing and Maintaining
Source Files Chapter 5 What Every
Developer Should Know about the Kernel
Chapter 6 Understanding Processes

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Chapter 7 Communication between
Processes Chapter 8 Debugging IPC with
Shell Commands Chapter 9 Performance
Tuning Chapter 10 Debugging Index
Software -- Operating Systems.
Deep Learning for Coders with fastai
and PyTorch
Linux System Programming
Programming for the Real World
An Introduction to Professional C
Programming