

Interprocess Communications In Linux The Nooks And Crannies By Gray John Shapley Prentice Hall 2003 Paperback Paperback

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

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 the system level, and this book helps you focus on everything 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.

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

Nwely 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)

From the Foreword: "...the presentation of real-time scheduling is probably the best in terms of clarity I have ever read in the professional literature. Easy to understand, which is important for busy professionals keen to acquire (or refresh) new knowledge without being bogged down in a convoluted narrative and an excessive detail overload. The authors managed to largely avoid theoretical-only presentation of the subject, which frequently affects books on operating systems. ... an indispensable [resource] to gain a thorough understanding of the real-time systems from the operating systems perspective, and to stay up to date with the recent trends and actual developments of the open-source real-time operating systems." —Richard Zurawski, ISA Group, San

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Francisco, California, USA Real-time embedded systems are integral to the global technological and social space, but references still rarely offer professionals the sufficient mix of theory and practical examples required to meet intensive economic, safety, and other demands on system development. Similarly, instructors have lacked a resource to help students fully understand the field. The information was out there, though often at the abstract level, fragmented and scattered throughout literature from different engineering disciplines and computing sciences. Accounting for readers' varying practical needs and experience levels, Real Time Embedded Systems: Open-Source Operating Systems Perspective offers a holistic overview from the operating-systems perspective. It provides a long-awaited reference on real-time operating systems and their almost boundless application potential in the embedded system domain. Balancing the already abundant coverage of operating systems with the largely ignored real-time aspects, or "physicality," the authors analyze several realistic case studies to introduce vital theoretical material. They also discuss popular open-source operating systems—Linux and FreRTOS, in particular—to help embedded-system designers identify the benefits and weaknesses in deciding whether or not to adopt more traditional, less powerful, techniques for a project.

To understand how a body is built you should get familiar with its parts. This micro-course describes basic elements used by the system kernel in order to organize the system work. In this material you can find information about what the process is, how it communicates with processes, and how communication between two processes works.

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

Multithreading is essential if you want to create an Android app with a great user experience, but how do you know which techniques can help solve your problem? This practical book describes many asynchronous mechanisms available in the Android SDK, and provides guidelines for selecting the ones most appropriate for the app you're building. Author Anders Goransson demonstrates the advantages and disadvantages of each technique, with sample code and detailed explanations for using it efficiently. The first part of the book describes the building blocks of asynchronous processing, and the second part covers Android libraries and constructs for developing fast, responsive, and well-structured apps. Understand multithreading basics in Java and on the Android platform Learn how threads communicate within and between processes Use strategies to reduce the risk of memory leaks Manage the lifecycle of a basic thread Run tasks sequentially in the background with HandlerThread Use Java's Executor Framework to control or cancel threads Handle background task execution with AsyncTask and IntentService Access content

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providers with AsyncQueryHandler Use loaders to update the UI with new data

The Linux Programming Interface (TLPI) is the definitive guide to the Linux and UNIX programming interface—the interface employed 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 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 comprehensive single-volume work on the Linux and UNIX programming interface, and a book that's destined to become a new classic.

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

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system.

A guide for programmers wanting to develop applications on the Linux platform includes an introduction to the operating system and discussions of documentation, compiling, linking and loading, Linux-specific debugging tools, the kernel interface, development tools, and dynamic loading at runtime. Original. (Intermediate).

Presents the performance analysis results of interprocess communication (IPC) mechanisms on Windows XP and Linux.

The tenth edition of Operating System Concepts has been revised to keep it fresh and up-to-date with contemporary examples of how operating systems function, as well as enhanced interactive elements to improve learning and the student's experience with the material. It combines instruction on concepts with real-world applications so that students can understand the practical usage of the content. End-of-chapter problems, exercises, review questions, and programming exercises help to further reinforce important concepts. New interactive self-assessment problems are provided throughout the text to help students monitor their level of understanding and progress. A Linux virtual machine (including C and Java source code and development tools) allows students to complete programming exercises that help them engage further with the material. The Enhanced E-Text is also available bundled with an abridged print companion and can be ordered by contacting customer service here: ISBN:

9781119456339 Price: \$97.95 Canadian Price: \$111.50

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 develop your own programs for Linux

Book 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 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 will be able to develop your own system programs for Linux, including daemons, tools, clients, and filters. What you will learn

- Discover how to write programs for the Linux system using a wide variety of system calls
- Delve into the working of POSIX functions
- Understand and use key concepts such as signals, pipes, IPC, and process management
- Find out how to integrate programs with a Linux system
- Explore advanced topics such as filesystem operations, creating shared libraries, and debugging your programs
- Gain an overall understanding of how to debug your programs using Valgrind

Who this book is for

This book is for

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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.

Learn how to build your own multimedia workstation, and how to use it! Slackermedia is a multimedia guidebook for people looking to get away from operating systems that tell them what they can or can't do in their art. But it doesn't stop there! In this volume, you'll find detailed guides on the most important multimedia applications on Linux today: the Kdenlive video editor and the Qtractor digital audio workstation. You'll also get tips and resources on other great multimedia applications of Linux, like Blender, Audacity, Jamin, CALF, LADSPA, GIMP, Inkscape, ffmpeg, sox, Qsynth, fluidsynth, soundfonts, Xsynth, whySynth, QJack Control, Font Matrix, and many many more. By the end of your journey with Slackermedia, you'll know everything you need to know to create original multimedia content and any kind of digital art on the powerful, free operating system of GNU Linux. So put your nerd glasses on, roll up your sleeves, and prepare yourself for creativity like you've never experienced.

Interprocess Communications in Linux Prentice Hall Professional

"The clearest, most complete guide to UNIX interprocess communications! When it comes to UNIX interprocess communications techniques that are essential to distributed client/server computing, no other book offers this much depth - or this much clarity. Starting with the basics, Interprocess Communications in UNIX, Second Edition explains exactly what UNIX processes are, how they are generated, and how they can access their own environments. This new edition also includes unprecedented practical coverage of multithreading with POSIX threads."--BOOK JACKET. Title Summary field provided by Blackwell North America, Inc. All Rights Reserved

Gray zeroes right in on the key techniques of processes and interprocess communication from primitive communications to the complexities of sockets. The book covers every aspect of UNIX/Linux interprocess communications in sufficient detail to allow experienced programmers to begin writing useful code immediately.

Even small applications have dozens of components. Large applications may have thousands, which makes them challenging to install, maintain, and remove. Docker bundles all application components into a package called a container that keeps things tidy and helps manage any dependencies on other applications or infrastructure. Docker in Action, Second Edition teaches you the skills and knowledge you need to create, deploy, and manage applications hosted in Docker containers. This bestseller has been fully updated with new examples, best practices, and entirely new chapters. You'll start with a clear explanation of the Docker model and learn how to package applications in containers, including techniques for testing and distributing applications. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

Find a Perl programmer, and you'll find a copy of Perl Cookbook nearby. Perl Cookbook is a comprehensive collection of problems, solutions, and practical examples for anyone programming in Perl. The book contains hundreds of rigorously reviewed Perl "recipes" and thousands of examples ranging from brief one-liners to complete applications. The second edition of Perl Cookbook has been fully updated for Perl 5.8, with extensive changes for Unicode support, I/O layers, mod_perl, and new technologies that have emerged since the previous edition of the book. Recipes have been updated to include the latest modules. New recipes have been added to every chapter of the book, and some chapters have almost doubled in size. Covered topic areas include: Manipulating strings, numbers, dates, arrays, and hashes Pattern

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matching and text substitutions References, data structures, objects, and classes Signals and exceptions Screen addressing, menus, and graphical applications Managing other processes Writing secure scripts Client-server programming Internet applications programming with mail, news, ftp, and telnet CGI and mod_perl programming Web programming Since its first release in 1998, Perl Cookbook has earned its place in the libraries of serious Perl users of all levels of expertise by providing practical answers, code examples, and mini-tutorials addressing the challenges that programmers face. Now the second edition of this bestselling book is ready to earn its place among the ranks of favorite Perl books as well. Whether you're a novice or veteran Perl programmer, you'll find Perl Cookbook, 2nd Edition to be one of the most useful books on Perl available. Its comfortable discussion style and accurate attention to detail cover just about any topic you'd want to know about. You can get by without having this book in your library, but once you've tried a few of the recipes, you won't want to. The book, now in its Fifth Edition, aims to provide a practical view of GNU/Linux and Windows 7, 8 and 10, covering different design considerations and patterns of use. The section on concepts covers fundamental principles, such as file systems, process management, memory management, input-output, resource sharing, inter-process communication (IPC), distributed computing, OS security, real-time and microkernel design. This thoroughly revised edition comes with a description of an instructional OS to support teaching of OS and also covers Android, currently the most popular OS for handheld systems. Basically, this text enables students to learn by practicing with the examples and doing exercises. **NEW TO THE FIFTH EDITION** • Includes the details on Windows 7, 8 and 10 • Describes an Instructional Operating System (PintOS), FEDORA and Android • The following additional material related to the book is available at www.phindia.com/bhatt.
o Source Code Control System in UNIX
o X-Windows in UNIX
o System Administration in UNIX
o VxWorks Operating System (full chapter)
o OS for handheld systems, excluding Android
o The student projects
o Questions for practice for selected chapters **TARGET AUDIENCE** • BE/B.Tech (Computer Science and Engineering and Information Technology) • M.Sc. (Computer Science) BCA/MCA

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 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.

Cluster computers provide a low-cost alternative to multiprocessor systems for many applications. Building a cluster computer is within the reach of any computer user with solid C programming skills and a knowledge of operating systems, hardware, and networking. This book leads you through the design and assembly of such a system, and shows you how to measure and tune its overall performance. A cluster computer is a multicomputer, a network of node computers running distributed software that makes them work together as a team. Distributed software turns a collection of networked computers into a distributed system. It presents the user with a single-system image and gives the system its personality. Software can turn a network of computers into a transaction processor, a supercomputer, or even a novel design of your own. Some of the techniques used in this book's distributed algorithms might be new to many readers, so several of the chapters are dedicated to such topics. You will learn about the hardware needed to network several PCs, the operating system files that need to be

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changed to support that network, and the multitasking and the interprocess communications skills needed to put the network to good use. Finally, there is a simple distributed transaction processing application in the book. Readers can experiment with it, customize it, or use it as a basis for something completely different.

Describes the concepts of programming with Linux, covering such topics as shell programming, file structure, managing memory, using MySQL, debugging, processes and signals, and GNOME.

Here is a programmer's guide to using and programming POSIX threads, commonly known as Pthreads. A "coder's book", this title tells how to use Pthreads in the real world, making efficient and portable applications. Pthreads are an important set of current tools programmers need to have in today's network-intensive climate.

Both theory and practice are blended together in order to learn how to build real operating systems that function within a distributed environment. An introduction to standard operating system topics is combined with newer topics such as security, microkernels and embedded systems. This book also provides an overview of operating system fundamentals. For programmers who want to refresh their basic skills and be brought up-to-date on those topics related to operating systems.

This book describes the internal algorithms and the structures that form the basis of the UNIX operating system and their relationship to the programmer interface. The system description is based on UNIX System V Release 2 supported by AT&T, with some features from Release 3.

"The Solaris™ Internals volumes are simply the best and most comprehensive treatment of the Solaris (and OpenSolaris) Operating Environment. Any person using Solaris--in any capacity--would be remiss not to include these two new volumes in their personal library. With advanced observability tools in Solaris (like DTrace), you will more often find yourself in what was previously unchartable territory. Solaris™ Internals, Second Edition, provides us a fantastic means to be able to quickly understand these systems and further explore the Solaris architecture--especially when coupled with OpenSolaris source availability." --Jarod Jenson, chief systems architect, Aeysis "The Solaris™ Internals volumes by Jim Mauro and Richard McDougall must be on your bookshelf if you are interested in in-depth knowledge of Solaris operating system internals and architecture. As a senior Unix engineer for many years, I found the first edition of Solaris™ Internals the only fully comprehensive source for kernel developers, systems programmers, and systems administrators. The new second edition, with the companion performance and debugging book, is an indispensable reference set, containing many useful and practical explanations of Solaris and its underlying subsystems, including tools and methods for observing and analyzing any system running Solaris 10 or OpenSolaris." --Marc Strahl, senior UNIX engineer Solaris™ Internals, Second Edition, describes the algorithms and data structures of all the major subsystems in the Solaris 10 and OpenSolaris kernels. The text has been extensively revised since the first edition, with more than 600 pages of new material. Integrated Solaris tools and utilities, including DTrace, MDB, kstat, and the process tools, are used throughout to illustrate how the reader can observe the Solaris kernel in action. The companion volume, Solaris™ Performance and Tools, extends the examples contained here, and expands the scope to performance and behavior analysis. Coverage includes:

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Virtual and physical memory Processes, threads, and scheduling File system framework and UFS implementation Networking: TCP/IP implementation Resource management facilities and zones The Solaris™ Internals volumes make a superb reference for anyone using Solaris 10 and OpenSolaris.

To facilitate scalability and resilience, many organizations now run applications in cloud native environments using containers and orchestration. But how do you know if the deployment is secure? This practical book examines key underlying technologies to help developers, operators, and security professionals assess security risks and determine appropriate solutions. Author Liz Rice, Chief Open Source Officer at Isovalent, looks at how the building blocks commonly used in container-based systems are constructed in Linux. You'll understand what's happening when you deploy containers and learn how to assess potential security risks that could affect your deployments. If you run container applications with kubectl or docker and use Linux command-line tools such as ps and grep, you're ready to get started. Explore attack vectors that affect container deployments Dive into the Linux constructs that underpin containers Examine measures for hardening containers Understand how misconfigurations can compromise container isolation Learn best practices for building container images Identify container images that have known software vulnerabilities Leverage secure connections between containers Use security tooling to prevent attacks on your deployment

The Bash Guide for Beginners (Second Edition) discusses concepts useful in the daily life of the serious Bash user. While a basic knowledge of shell usage is required, it starts with a discussion of shell building blocks and common practices. Then it presents the grep, awk and sed tools that will later be used to create more interesting examples. The second half of the course is about shell constructs such as loops, conditional tests, functions and traps, and a number of ways to make interactive scripts. All chapters come with examples and exercises that will help you become familiar with the theory.

Software -- Operating Systems.

Numerous people still believe that learning and acquiring expertise in Linux is not easy, that only a professional can understand how a Linux system works. Nowadays, Linux has gained much popularity both at home and at the workplace. Linux Yourself: Concept and Programming aims to help and guide people of all ages by offering a deep insight into the concept of Linux, its usage, programming, administration, and several other connected topics in an easy approach. This book can also be used as a textbook for undergraduate/postgraduate engineering students and others who have a passion to gain expertise in the field of computer science/information technology as a Linux developer or administrator. The word "Yourself" in the title refers to the fact that the content of this book is designed to give a good foundation to understand the Linux concept and to guide yourself as a good Linux professional in various platforms. There are no prerequisites to understand the contents from this book, and a person with basic knowledge of C programming language will be able to grasp the concept with ease. With this mindset, all the topics are presented in such a way that it should be simple, clear, and straightforward with many examples and figures. Linux is distinguished by its own power and flexibility, along with open-source accessibility and community as compared to other operating systems, such as Windows and macOS. It is the author's sincere view that readers of all levels will find this book worthwhile and will be

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able to learn or sharpen their skills. KEY FEATURES Provides a deep conceptual learning and expertise in programming skill for any user about Linux, UNIX, and their features. Elaborates GUI and CUI including Linux commands, various shells, and the vi editor Details file management and file systems to understand Linux system architecture easily Promotes hands-on practices of regular expressions and advanced filters, such as sed and awk through many helpful examples Describes an insight view of shell scripting, process, thread, system calls, signal, inter-process communication, X Window System, and many more aspects to understand the system programming in the Linux environment Gives a detailed description of Linux administration by elaborating LILO, GRUB, RPM-based package, and program installation and compilation that can be very helpful in managing the Linux system in a very efficient way Reports some famous Linux distributions to understand the similarity among all popular available Linux and other features as case studies

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, 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 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 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 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 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 Chapter 7 Communication between Processes Chapter 8 Debugging IPC with Shell Commands Chapter 9 Performance Tuning Chapter 10

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Debugging Index

Explore the fundamentals of systems programming starting from kernel API and filesystem to network programming and process communications

Key Features Learn how to write Unix and Linux system code in Golang v1.12 Perform inter-process communication using pipes, message queues, shared memory, and semaphores Explore modern Go features such as goroutines and channels that facilitate systems programming

Book Description System software and applications were largely created using low-level languages such as C or C++. Go is a modern language that combines simplicity, concurrency, and performance, making it a good alternative for building system applications for Linux and macOS. This Go book introduces Unix and systems programming to help you understand the components the OS has to offer, ranging from the kernel API to the filesystem, and familiarize yourself with Go and its specifications. You'll also learn how to optimize input and output operations with files and streams of data, which are useful tools in building pseudo terminal applications. You'll gain insights into how processes communicate with each other, and learn about processes and daemon control using signals, pipes, and exit codes. This book will also enable you to understand how to use network communication using various protocols, including TCP and HTTP. As you advance, you'll focus on Go's best feature-concurrency helping you handle communication with channels and goroutines, other concurrency tools to synchronize shared resources, and the context package to write elegant applications. By the end of this book, you will have learned how to build concurrent system applications using Go

What you will learn Explore concepts of system programming using Go and concurrency Gain insights into Golang's internals, memory models and allocation Familiarize yourself with the filesystem and IO streams in general Handle and control processes and daemons' lifetime via signals and pipes Communicate with other applications effectively using a network Use various encoding formats to serialize complex data structures Become well-versed in concurrency with channels, goroutines, and sync Use concurrency patterns to build robust and performant system applications

Who this book is for If you are a developer who wants to learn system programming with Go, this book is for you. Although no knowledge of Unix and Linux system programming is necessary, intermediate knowledge of Go will help you understand the concepts covered in the book

Praise for the First Edition: "This outstanding book ... gives the reader robust concepts and implementable knowledge of this environment. Graphical user interface (GUI)-based users and developers do not get short shrift, despite the command-line interface's (CLI) full-power treatment. ... Every programmer should read the introduction's Unix/Linux philosophy section. ... This authoritative and exceptionally well-constructed book has my highest recommendation. It will repay careful and recursive study."
--Computing Reviews, August 2011

Mastering Modern Linux, Second Edition retains much of the good material from the previous edition, with extensive updates and new topics added. The book provides a comprehensive and up-to-date guide to Linux concepts, usage, and programming. The text helps the reader master Linux with a well-selected set of topics, and encourages hands-on practice. The first part of the textbook covers interactive use of Linux via the Graphical User Interface (GUI) and the Command-Line Interface (CLI), including comprehensive treatment of the Gnome desktop and the Bash Shell. Using different

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apps, commands and filters, building pipelines, and matching patterns with regular expressions are major focuses. Next comes Bash scripting, file system structure, organization, and usage. The following chapters present networking, the Internet and the Web, data encryption, basic system admin, as well as Web hosting. The Linux Apache MySQL/MariaDB PHP (LAMP) Web hosting combination is also presented in depth. In the last part of the book, attention is turned to C-level programming. Topics covered include the C compiler, preprocessor, debugger, I/O, file manipulation, process control, inter-process communication, and networking. The book includes many examples and complete programs ready to download and run. A summary and exercises of varying degrees of difficulty can be found at the end of each chapter. A companion website (<http://mml.sofpower.com>) provides appendices, information updates, an example code package, and other resources for instructors, as well as students.

bull; Learn UNIX essentials with a concentration on communication, concurrency, and multithreading techniques bull; Full of ideas on how to design and implement good software along with unique projects throughout bull; Excellent companion to Stevens' Advanced UNIX System Programming

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 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.

O'Reilly's Pocket Guides have earned a reputation as inexpensive, comprehensive, and compact guides that have the stuff but not the fluff. Every page of Linux Pocket Guide lives up to this billing. It clearly explains how to get up to speed quickly on day-to-day Linux use. Once you're up and running, Linux Pocket Guide provides an easy-to-use reference that you can keep by your keyboard for those times when you want a fast, useful answer, not hours in the man pages. Linux Pocket Guide is organized the way you use Linux: by function, not just alphabetically. It's not the 'bible of Linux; it's a practical and concise guide to the options and commands you need most. It starts with general concepts like files and directories, the shell, and X windows, and then presents detailed overviews of the most essential commands, with clear examples. You'll learn each command's purpose, usage, options, location on disk, and even the RPM package that installed it. The Linux Pocket Guide is tailored to Fedora Linux--the latest spin-off of Red Hat Linux--but most of the information applies to any Linux system. Throw in a host of valuable power user tips and a friendly and accessible style, and you'll quickly find this practical, to-the-point book a small but mighty resource for Linux users. This book teaches systems programming with the latest versions of C through a set of practical examples and problems. It covers the development of a handful of programs, implementing efficient coding examples. Practical Systems Programming with C contains three main parts: getting your hands dirty with C programming; practical systems programming using concepts such as processes, signals, and inter-process communication; and advanced socket-based programming which consists of developing a

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network application for reliable communication. You will be introduced to a marvelous ecosystem of systems programming with C, from handling basic system utility commands to communicating through socket programming. With the help of socket programming you will be able to build client-server applications in no time. The “secret sauce” of this book is its curated list of topics and solutions, which fit together through a set of different pragmatic examples; each topic is covered from scratch in an easy-to-learn way. On that journey, you’ll focus on practical implementations and an outline of best practices and potential pitfalls. The book also includes a bonus chapter with a list of advanced topics and directions to grow your skills. What You Will Learn Program with operating systems using the latest version of C Work with Linux Carry out multithreading with C Examine the POSIX standard Work with files, directories, processes, and signals Explore IPC and how to work with it Who This Book Is For Programmers who have an exposure to C programming and want to learn systems programming. This book will help them to learn about core concepts of operating systems with the help of C programming. .

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