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The Most Complete, Easy-to-Follow Guide to Ubuntu Linux The #1 Ubuntu server resource, fully updated for Ubuntu 10.4 (Lucid Lynx)-the Long Term Support (LTS) release many companies will rely on for years! Updated JumpStarts help you set up Samba, Apache, Mail, FTP, NIS, OpenSSH, DNS, and other complex servers in minutes Hundreds of up-to-date examples, plus comprehensive indexes that deliver instant access to answers you can trust Mark Sobell's A Practical Guide to

***Ubuntu Linux®*, Third Edition, is the most thorough and up-to-date reference to installing, configuring, and working with Ubuntu, and also offers comprehensive coverage of servers--critical for anybody interested in unleashing the full power of Ubuntu. This edition has been fully updated for Ubuntu 10.04 (Lucid Lynx), a milestone Long Term Support (LTS) release, which Canonical will support on desktops until 2013 and on servers until 2015. Sobell walks you through every essential feature and technique, from installing Ubuntu to working with GNOME, Samba, exim4, Apache, DNS, NIS, LDAP, g ufw, firestarter, iptables, even Perl scripting. His exceptionally clear explanations demystify everything from networking to security. You'll find full chapters on running Ubuntu from the command line and desktop (GUI), administrating**

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systems, setting up networks and Internet servers, and much more. Fully updated JumpStart sections help you get complex servers running--often in as little as five minutes. Sobell draws on his immense Linux knowledge to explain both the "hows" and the "whys" of Ubuntu. He's taught hundreds of thousands of readers and never forgets what it's like to be new to Linux. Whether you're a user, administrator, or programmer, you'll find everything you need here--now, and for many years to come. The world's most practical Ubuntu Linux book is now even more useful! This book delivers Hundreds of easy-to-use Ubuntu examples Important networking coverage, including DNS, NFS, and Cacti Coverage of crucial Ubuntu topics such as sudo and the Upstart init daemon More detailed, usable coverage of Internet server configuration, including Apache (Web) and exim4

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(email) servers State-of-the-art security techniques, including up-to-date firewall setup techniques using gufw and iptables, and a full chapter on OpenSSH A complete introduction to Perl scripting for automated administration Deeper coverage of essential admin tasks-from managing users to CUPS printing, configuring LANs to building a kernel Complete instructions on keeping Ubuntu systems up-to-date using aptitude, Synaptic, and the Software Sources window And much more...including a 500+ term glossary Includes DVD! Get the full version of Lucid Lynx, the latest Ubuntu LTS release!

"This book discusses non-distributed operating systems that benefit researchers, academicians, and practitioners"--Provided by publisher.

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

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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

One of the world's most experienced Linux driver developers demonstrates how to develop reliable Linux drivers for virtually any device. This resource is for any programmer with a working knowledge of operating systems and C, including programmers who have never written drivers before.

BPF Performance Tools

Linux System Programming

Operating Systems

Linux Kernel Development

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

Learn how to write high-quality kernel module code, solve common Linux kernel programming issues, and understand the fundamentals of Linux kernel internals

Key Features Discover how to write kernel code using the Loadable Kernel Module framework Explore industry-grade techniques to perform efficient memory allocation and data synchronization within the

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Understand the essentials of key internals topics such as kernel architecture, memory management, CPU scheduling, and kernel synchronization

Book Description

Linux Kernel Programming is a comprehensive introduction for those new to Linux kernel and module development. This easy-to-follow guide will have you up and running with writing kernel code in next-to-no time. This book uses the latest 5.4 Long-Term Support (LTS) Linux kernel, which will be maintained from November 2019 through to December 2025. By working with the 5.4 LTS kernel throughout the book, you can be confident that your knowledge will continue to be valid for years to

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come. You'll start the journey by learning how to build the kernel from the source. Next, you'll write your first kernel module using the powerful Loadable Kernel Module (LKM) framework. The following chapters will cover key kernel internals topics including Linux kernel architecture, memory management, and CPU scheduling. During the course of this book, you'll delve into the fairly complex topic of concurrency within the kernel, understand the issues it can cause, and learn how they can be addressed with various locking technologies (mutexes, spinlocks, atomic, and refcount operators). You'll also benefit from more advanced material on cache

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effects, a primer on lock-free techniques within the kernel, deadlock avoidance (with lockdep), and kernel lock debugging techniques. By the end of this kernel book, you'll have a detailed understanding of the fundamentals of writing Linux kernel module code for real-world projects and products. What you will learn

- Write high-quality modular kernel code (LKM framework) for 5.x kernels
- Configure and build a kernel from source
- Explore the Linux kernel architecture
- Get to grips with key internals regarding memory management within the kernel
- Understand and work with various dynamic kernel memory alloc/dealloc APIs
- Discover key

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internals aspects regarding CPU scheduling within the kernel Gain an understanding of kernel concurrency issues Find out how to work with key kernel synchronization primitives Who this book is for This book is for Linux programmers beginning to find their way with Linux kernel development. If you're a Linux kernel and driver developer looking to overcome frequent and common kernel development issues, or understand kernel intervals, you'll find plenty of useful information. You'll need a solid foundation of Linux CLI and C programming before you can jump in.

For a one-semester undergraduate course in operating systems for

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computer science, computer engineering, and electrical engineering majors. Winner of the 2009 Textbook Excellence Award from the Text and Academic Authors Association (TAA)! Operating Systems: Internals and Design Principles is a comprehensive and unified introduction to operating systems. By using several innovative tools, Stallings makes it possible to understand critical core concepts that can be fundamentally challenging. The new edition includes the implementation of web based animations to aid visual learners. At key points in the book, students are directed to view an animation and then are provided

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with assignments to alter the animation input and analyze the results. The concepts are then enhanced and supported by end-of-chapter case studies of UNIX, Linux and Windows Vista. These provide students with a solid understanding of the key mechanisms of modern operating systems and the types of design tradeoffs and decisions involved in OS design. Because they are embedded into the text as end of chapter material, students are able to apply them right at the point of discussion. This approach is equally useful as a basic reference and as an up-to-date survey of the state of the art. This new edition of Linux for Embedded and Real-Time

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Applications provides a practical introduction to the basics and the latest developments in this rapidly evolving technology. Ideal for those new to using Linux in an embedded environment, it takes a hands-on approach and covers key concepts plus specific applications. Key features include: Substantially updated to focus on a specific ARM-based single board computer (SBC) as a target for embedded application programming Includes an introduction to Android programming With this book you will learn: The basics of Open Source, Linux and the embedded space How to set up a simple system and tool chain How to use simulation for initial application

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testing Network, graphics and
Android programming How to use
some of the many Linux
components and tools How to
configure and build the Linux
kernel, BusyBox and U-Boot
bootloader Provides a hands-on
introduction for engineers and
software developers who need to
get up to speed quickly on
embedded Linux, its operation and
its capabilities – including Android
Updated and changed
accompanying tools, with a focus
on the author's specially-developed
Embedded Linux Learning Kit
Internals and Design Principles
LINUX Assembly Language
Programming
Embedded Linux Primer

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Systems Performance

Advanced Operating Systems and
Kernel Applications: Techniques
and Technologies

A Distribution-Neutral Guide for
Servers and Desktops

CD-ROM contains: Electronic
version of text in HTML
format

Up-to-the-Minute, Complete
Guidance for Developing
Embedded Solutions with
Linux Linux has emerged as
today's #1 operating system
for embedded products.

Christopher Hallinan's
Embedded Linux Primer has
proven itself as the
definitive real-world guide
to building efficient, high-
value, embedded systems with

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Linux. Now, Hallinan has thoroughly updated this highly praised book for the newest Linux kernels, capabilities, tools, and hardware support, including advanced multicore processors. Drawing on more than a decade of embedded Linux experience, Hallinan helps you rapidly climb the learning curve, whether you're moving from legacy environments or you're new to embedded programming. Hallinan addresses today's most important development challenges and demonstrates how to solve the problems you're most likely to encounter. You'll learn how to build a modern, efficient

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embedded Linux development environment, and then utilize it as productively as possible. Hallinan offers up-to-date guidance on everything from kernel configuration and initialization to bootloaders, device drivers to file systems, and BusyBox utilities to real-time configuration and system analysis. This edition adds entirely new chapters on UDEV, USB, and open source build systems. Tour the typical embedded system and development environment and understand its concepts and components. Understand the Linux kernel and userspace initialization processes.

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Preview bootloaders, with specific emphasis on U-Boot. Configure the Memory Technology Devices (MTD) subsystem to interface with flash (and other) memory devices. Make the most of BusyBox and latest open source development tools. Learn from expanded and updated coverage of kernel debugging. Build and analyze real-time systems with Linux. Learn to configure device files and driver loading with UDEV. Walk through detailed coverage of the USB subsystem. Introduces the latest open source embedded Linux build systems. Reference appendices include U-Boot

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and BusyBox commands.

You may be contemplating your first Linux installation. Or you may have been using Linux for years and need to know more about adding a network printer or setting up an FTP server. Running Linux, now in its fifth edition, is the book you'll want on hand in either case. Widely recognized in the Linux community as the ultimate getting-started and problem-solving book, it answers the questions and tackles the configuration issues that frequently plague users, but are seldom addressed in other books. This fifth edition of Running Linux is

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greatly expanded, reflecting the maturity of the operating system and the teeming wealth of software available for it. Hot consumer topics such as audio and video playback applications, groupware functionality, and spam filtering are covered, along with the basics in configuration and management that always have made the book popular. Running Linux covers basic communications such as mail, web surfing, and instant messaging, but also delves into the subtleties of network configuration--including dial-up, ADSL, and cable modems--in case you need to

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set up your network manually. The book can make you proficient on office suites and personal productivity applications--and also tells you what programming tools are available if you're interested in contributing to these applications. Other new topics in the fifth edition include encrypted email and filesystems, advanced shell techniques, and remote login applications. Classic discussions on booting, package management, kernel recompilation, and X configuration have also been updated. The authors of Running Linux have

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anticipated problem areas, selected stable and popular solutions, and provided clear instructions to ensure that you'll have a satisfying experience using Linux. The discussion is direct and complete enough to guide novice users, while still providing the additional information experienced users will need to progress in their mastery of Linux. Whether you're using Linux on a home workstation or maintaining a network server, *Running Linux* will provide expert advice just when you need it.

Learn to develop customized device drivers for your

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embedded Linux system About
This Book Learn to develop
customized Linux device
drivers Learn the core
concepts of device drivers
such as memory management,
kernel caching, advanced IRQ
management, and so on.

Practical experience on the
embedded side of Linux Who
This Book Is For This book
will help anyone who wants
to get started with
developing their own Linux
device drivers for embedded
systems. Embedded Linux
users will benefit highly
from this book. This book
covers all about device
driver development, from
char drivers to network
device drivers to memory

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management. What You Will
Learn Use kernel facilities
to develop powerful drivers
Develop drivers for widely
used I2C and SPI devices and
use the regmap API Write and
support devicetree from
within your drivers Program
advanced drivers for network
and frame buffer devices
Delve into the Linux
irqdomain API and write
interrupt controller drivers
Enhance your skills with
regulator and PWM frameworks
Develop measurement system
drivers with IIO framework
Get the best from memory
management and the DMA
subsystem Access and manage
GPIO subsystems and develop
GPIO controller drivers In

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Detail Linux kernel is a complex, portable, modular and widely used piece of software, running on around 80% of servers and embedded systems in more than half of devices throughout the World. Device drivers play a critical role in how well a Linux system performs. As Linux has turned out to be one of the most popular operating systems used, the interest in developing proprietary device drivers is also increasing steadily. This book will initially help you understand the basics of drivers as well as prepare for the long journey through the Linux Kernel. This book then covers

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drivers development based on various Linux subsystems such as memory management, PWM, RTC, IIO, IRQ management, and so on. The book also offers a practical approach on direct memory access and network device drivers. By the end of this book, you will be comfortable with the concept of device driver development and will be in a position to write any device driver from scratch using the latest kernel version (v4.13 at the time of writing this book).
Style and approach A set of engaging examples to develop Linux device drivers
Android System Programming
Embedded Visual System and

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Its Applications on Robots

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

Enterprise and the Cloud

Linux for Embedded and Real-
time Applications

Programming Embedded Systems

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

Annotation Embedded vision systems
such as smart cameras have been
rapidly developed recently. Vision
systems have become smaller and
lighter, but their performance has
improved. The algorithms in
embedded vision systems have their
specifications limited by frequency of
CPU, memory size, and architecture.

The goal of this e-book is to provide a

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an advanced reference work for engineers, researchers and scholars in the field of robotics, machine vision, and automation and to facilitate the exchange of their ideas, experiences and views on embedded vision system models. The effectiveness for all methods is emphasized in a practical sense for systems presented in this e-book.

The #1 introduction to J2SE 1.5 and enterprise/server-side development! An international bestseller for eight years, Just Java™ 2 is the complete, accessible Java tutorial for working programmers at all levels. Fully updated and revised, this sixth edition is more than an engaging overview of Java 2 Standard Edition (J2SE 1.5) and its libraries: it's also a practical introduction to today's best enterprise and server-side programming

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techniques. Just Java™ 2, Sixth Edition, reflects both J2SE 1.5 and the latest Tomcat and servlet specifications. Extensive new coverage includes: New chapters on generics and enumerated types New coverage of Web services, with practical examples using Google and Amazon Web services Simplified interactive I/O with printf() Autoboxing and unboxing of primitive types Static imports, foreach loop construct, and other new language features Peter van der Linden delivers expert advice, clear explanations, and crisp sample programs throughout—including dozens new to this edition. Along the way, he introduces: The core language: syntax, objects, interfaces, nested classes, compiler secrets, and much more Key libraries: date and calendar, pattern matching, network software, mapped

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I/O, utilities and generic collections
Server-side technology: network
server systems, a complete tiny HTML
Web server, and XML in Java
Enterprise J2EE: Sql and JDBC™
tutorial, servlets and JSP and much
more Client-side Java: fundamentals
of JFC/Swing GUI development, new
class data sharing details Companion
Web Site All the book's examples and
sample programs are available at
<http://afu.com>.

In-depth instruction and practical
techniques for building with the
BeagleBone embedded Linux platform
Exploring BeagleBone is a hands-on
guide to bringing gadgets, gizmos, and
robots to life using the popular
BeagleBone embedded Linux platform.
Comprehensive content and deep
detail provide more than just a
BeagleBone instruction manual—you'll

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also learn the underlying engineering techniques that will allow you to create your own projects.

The book begins with a foundational primer on essential skills, and then gradually moves into communication, control, and advanced applications using C/C++, allowing you to learn at your own pace. In addition, the book's companion website

features instructional videos, source code, discussion forums, and more, to ensure that you have everything you need. The BeagleBone's small size, high performance, low cost, and extreme adaptability have made it a favorite development platform, and the Linux software base allows for complex yet flexible functionality. The BeagleBone has applications in smart buildings, robot control, environmental sensing, to name a

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few, and, expansion boards and peripherals dramatically increase the possibilities. Exploring BeagleBone provides a reader-friendly guide to the device, including a crash course in computer engineering. While following step by step, you can: Get up to speed on embedded Linux, electronics, and programming Master interfacing electronic circuits, buses and modules, with practical examples Explore the Internet-connected BeagleBone and the BeagleBone with a display Apply the BeagleBone to sensing applications, including video and sound Explore the BeagleBone's Programmable Real-Time Controllers Hands-on learning helps ensure that your new skills stay with you, allowing you to design with electronics, modules, or peripherals even beyond the BeagleBone. Insightful guidance

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andonline peer support help you
transition from beginner to expert

asyou master the techniques
presented in Exploring

BeagleBone,the practical handbook for
the popular computing platform.

Tools and Techniques for Building with
Embedded Linux

Exploring BeagleBone

Design and Implementation of Network
Protocols in the Linux Kernel

Develop customized drivers for
embedded Linux

A Practical Guide To Linux

Building Embedded Linux Systems

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

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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

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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

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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

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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 Debugging Index

BPF and related observability
tools give software professionals

unprecedented visibility into

software, helping them analyze

operating system and application
performance, troubleshoot code,

and strengthen security. BPF

Open Source Software
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Performance Tools: Linux
System and Application

Observability is the industry's most comprehensive guide to using these tools for observability. Brendan Gregg, author of the industry's definitive guide to system performance, introduces powerful new methods and tools for doing analysis that leads to more robust, reliable, and safer code. This authoritative guide:
Explores a wide spectrum of software and hardware targets
Thoroughly covers open source BPF tools from the Linux Foundation iovisor project's bcc and bpftrace repositories

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Summarizes performance engineering and kernel internals you need to understand Provides and discusses 150+ bpftrace tools, including 80 written specifically for this book: tools you can run as-is, without programming — or customize and develop further, using diverse interfaces and the bpftrace front-end You'll learn how to use BPF (eBPF) tracing tools to analyze CPUs, memory, disks, file systems, networking, languages, applications, containers, hypervisors, security, and the Linux kernel. You'll move from basic to advanced tools and techniques, producing new

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metrics, stack traces, custom latency histograms, and more. It's like having a superpower: with Gregg's guidance and tools, you can analyze virtually everything that impacts system performance, so you can improve virtually any Linux operating system or application. Master x86 language from the Linux point of view with this one-concept-at-a-time guide. Neveln gives an "under the hood" perspective of how Linux works and shows how to create device drivers. The CD-ROM includes all source code from the book plus edlinas, an x86 simulator that's perfect for hands-on,

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interactive assembler
development.

This multimedia tutorial and book package teaches Linux shells programming. It guides the reader through all of the Linux equivalents of UNIX shells and key utilities, including bash, tcsh and gawk. 50 real world shell scripts that automate routine system administration are included.

Linux

A Practical Guide to Ubuntu

Linux

Linux in a Nutshell

The Linux Programmer's Toolbox

Linux Kernel Programming

Essential Linux Device Drivers

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Linux® is being adopted by an increasing number of embedded systems developers, who have been won over by its sophisticated scheduling and networking, its cost-free license, its open development model, and the support offered by rich and powerful programming tools. While there is a great deal of hype surrounding the use of Linux in embedded systems, there is not a lot of practical information. Building Embedded Linux Systems

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is the first in-depth,
hard-core guide to
putting together an
embedded system based on
the Linux kernel. This
indispensable book
features arcane and
previously undocumented
procedures for: Building
your own GNU development
toolchain Using an
efficient embedded
development framework
Selecting, configuring,
building, and installing
a target-specific kernel
Creating a complete
target root filesystem
Setting up,

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manipulating, and using
solid-state storage
devices Installing and
configuring a bootloader
for the target Cross-
compiling a slew of
utilities and packages
Debugging your embedded
system using a plethora
of tools and techniques
Details are provided for
various target
architectures and
hardware configurations,
including a thorough
review of Linux's
support for embedded
hardware. All
explanations rely on the

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use of open source and free software packages. By presenting how to build the operating system components from pristine sources and how to find more documentation or help, this book greatly simplifies the task of keeping complete control over one's embedded operating system, whether it be for technical or sound financial reasons. Author Karim Yaghmour, a well-known designer and speaker who is

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responsible for the Linux Trace Toolkit, starts by discussing the strengths and weaknesses of Linux as an embedded operating system.

Licensing issues are included, followed by a discussion of the basics of building embedded Linux systems. The configuration, setup, and use of over forty different open source and free software packages commonly used in embedded Linux systems are also covered. uClibc,

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BusyBox, U-Boot,
OpenSSH, tftpd, tftp,
strace, and gdb are
among the packages
discussed.

This introduction to
networking on Linux now
covers firewalls,
including the use of
ipchains and Netfilter,
masquerading, and
accounting. Other new
topics in this second
edition include Novell
(NCP/IPX) support and
INN (news
administration).

Discover how to write
high-quality character

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driver code, interface
with userspace, work
with chip memory, and
gain an in-depth
understanding of working
with hardware interrupts
and kernel

synchronization Key
FeaturesDelve into
hardware interrupt
handling, threaded IRQs,
tasklets, softirqs, and
understand which to use
whenExplore powerful
techniques to perform
user-kernel interfacing,
peripheral I/O and use
kernel mechanismsWork
with key kernel

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synchronization
primitives to solve
kernel concurrency
issuesBook Description
Linux Kernel Programming
Part 2 - Char Device
Drivers and Kernel
Synchronization is an
ideal companion guide to
the Linux Kernel
Programming book. This
book provides a
comprehensive
introduction for those
new to Linux device
driver development and
will have you up and
running with writing
misc class character

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device driver code (on the 5.4 LTS Linux kernel) in next to no time. You'll begin by learning how to write a simple and complete misc class character driver before interfacing your driver with user-mode processes via procfs, sysfs, debugfs, netlink sockets, and ioctl.

You'll then find out how to work with hardware I/O memory. The book covers working with hardware interrupts in depth and helps you understand interrupt

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request (IRQ) allocation, threaded IRQ handlers, tasklets, and softirqs. You'll also explore the practical usage of useful kernel mechanisms, setting up delays, timers, kernel threads, and workqueues. Finally, you'll discover how to deal with the complexity of kernel synchronization with locking technologies (mutexes, spinlocks, and atomic/refcount operators), including more advanced topics such as cache effects, a

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primer on lock-free techniques, deadlock avoidance (with lockdep), and kernel lock debugging techniques. By the end of this Linux kernel book, you'll have learned the fundamentals of writing Linux character device driver code for real-world projects and products. What you will learnGet to grips with the basics of the modern Linux Device Model (LDM)Write a simple yet complete misc class character

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device driverPerform
user-kernel interfacing
using popular
methodsUnderstand and
handle hardware
interrupts
confidentlyPerform I/O
on peripheral hardware
chip memoryExplore
kernel APIs to work with
delays, timers,
kthreads, and
workqueuesUnderstand
kernel concurrency
issuesWork with key
kernel synchronization
primitives and discover
how to detect and avoid
deadlockWho this book is

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for An understanding of
the topics covered in
the Linux Kernel

Programming book is
highly recommended to
make the most of this
book. This book is for
Linux programmers
beginning to find their
way with device driver
development. Linux
device driver developers
looking to overcome
frequent and common
kernel/driver
development issues, as
well as perform common
driver tasks such as
user-kernel interfaces,

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performing peripheral I/O, handling hardware interrupts, and dealing with concurrency will benefit from this book. A basic understanding of Linux kernel internals (and common APIs), kernel module development, and C programming is required. Build, customize, and debug your own Android system About This Book Master Android system-level programming by integrating, customizing, and extending popular open

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source projects Use
Android emulators to
explore the true
potential of your
hardware Master key
debugging techniques to
create a hassle-free
development environment
Who This Book Is For
This book is for Android
system programmers and
developers who want to
use Android and create
indigenous projects with
it. You should know the
important points about
the operating system and
the C/C++ programming
language. What You Will

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Learn Set up the Android development environment and organize source code repositories Get acquainted with the Android system architecture Build the Android emulator from the AOSP source tree Find out how to enable WiFi in the Android emulator Debug the boot up process using a customized Ramdisk Port your Android system to a new platform using VirtualBox Find out what recovery is and see how to enable it in the AOSP

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build Prepare and test
OTA packages In Detail
Android system
programming involves
both hardware and
software knowledge to
work on system level
programming. The
developers need to use
various techniques to
debug the different
components in the target
devices. With all the
challenges, you usually
have a deep learning
curve to master relevant
knowledge in this area.
This book will not only
give you the key

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knowledge you need to understand Android system programming, but will also prepare you as you get hands-on with projects and gain debugging skills that you can use in your future projects. You will start by exploring the basic setup of AOSP, and building and testing an emulator image. In the first project, you will learn how to customize and extend the Android emulator. Then you'll move on to the real challenge—building

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your own Android system on VirtualBox. You'll see how to debug the init process, resolve the bootloader issue, and enable various hardware interfaces.

When you have a complete system, you will learn how to patch and upgrade it through recovery.

Throughout the book, you will get to know useful tips on how to integrate and reuse existing open source projects such as LineageOS (CyanogenMod), Android-x86, Xposed, and GApps in your own

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system. Style and approach This is an easy-to-follow guide full of hands-on examples and system-level programming tips.

Rute User's Tutorial and Exposition

Professional Linux

Kernel Architecture

Security Testing,

Penetration Testing, and

Ethical Hacking

User Mode Linux

Running Linux

Linux Device Drivers

Development

“As an author, editor, and publisher, I never paid much

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–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
bloat. It’s just straight-
forward information
delivered in a colorful and
memorable fashion.” –Jason
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Linux® System Administration
Handbook, Fifth Edition, is
today’s definitive guide to
installing, configuring, and
maintaining any UNIX or
Linux system, including

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systems that supply core Internet and cloud infrastructure. Updated for new distributions and cloud environments, this comprehensive guide covers best practices for every facet of system administration, including storage management, network design and administration, security, web hosting, automation, configuration management, performance analysis, virtualization, DNS, security, and the management of IT service organizations. The authors—world-class, hands-on technologists—offer indispensable new coverage of cloud platforms, the

**DevOps philosophy,
continuous deployment,
containerization,
monitoring, and many other
essential topics. Whatever
your role in running systems
and networks built on UNIX
or Linux, this
conversational, well-written
guide will improve your
efficiency and help solve
your knottiest problems.
Authored by two of the
leading authorities in the
field, this guide offers
readers the knowledge and
skills needed to achieve
proficiency with embedded
software.**

**With User Mode Linux you can
create virtual Linux
machines within a Linux**

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computer and use them to safely test and debug applications, network services, and even kernels. You can try out new distributions, experiment with buggy software, and even test security. Now, for the first time, the creator and maintainer of User Mode Linux shows how to put it to work hands-on. Jeff Dike covers everything from getting started through running enterprise-class User Mode Linux servers. You'll find authoritative advice on bootup, compilation, administration, specialized configurations, and much more. Coverage includes What User Mode

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Linux is, how it works, and
its uses in Linux networks
Key applications, including
server consolidation,
development, and disaster
recovery Booting and
exploration: logins,
consoles, swap space,
partitioned disks, and more
Copy-On-Write (COW): UML's
efficient approach to
storing filesystem changes
In-depth discussion of User
Mode Linux networking and
security Centrally managing
User Mode Linux instances,
and controlling their
hardware resources
Implementing clusters and
other specialized
configurations Setting up
User Mode Linux servers,

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**step-by-step: small-scale
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or complex. Includes
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coding, debugging,
deployment, maintenance and
beyond, choosing and**

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implementing editors,
compilers, assemblers,
debuggers, version control
systems, utilities, using
Linux Standard Base to
deliver applications that
run reliably on a wide range
of Linux systems, comparing
Java development options for
Linux platforms, using Linux
in cross-platform and
embedded development
environments.

The Complete Linux Shell
Programming Training Course
The Definitive Guide to the
Xen Hypervisor
Includes Index
Communication, Concurrency,
and Threads
Understanding Linux Network
Internals

**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.

To thoroughly understand what makes Linux tick and why it's so efficient, you need to delve deep into the heart of the operating system--into the Linux kernel itself. The kernel is Linux--in the case of the Linux operating system, it's the only bit of software to which the term "Linux" applies. The kernel handles all the requests or completed I/O operations and determines which programs will share its processing time, and in what order. Responsible for the sophisticated memory management of the whole system, the Linux kernel is the force behind the

legendary Linux efficiency.

**The new edition of
Understanding the Linux
Kernel takes you on a guided
tour through the most
significant data structures,
many algorithms, and
programming tricks used in
the kernel. Probing beyond
the superficial features, the
authors offer valuable
insights to people who want to
know how things really work
inside their machine. Relevant
segments of code are
dissected and discussed line
by line. The book covers more
than just the functioning of
the code, it explains the
theoretical underpinnings for
why Linux does things the way
it does. The new edition of the**

book has been updated to cover version 2.4 of the kernel, which is quite different from version 2.2: the virtual memory system is entirely new, support for multiprocessor systems is improved, and whole new classes of hardware devices have been added. The authors explore each new feature in detail. Other topics in the book include: Memory management including file buffering, process swapping, and Direct memory Access (DMA) The Virtual Filesystem and the Second Extended Filesystem Process creation and scheduling Signals, interrupts, and the essential interfaces to device drivers

**Timing Synchronization in the
kernel Interprocess
Communication (IPC)**

Program execution

**Understanding the Linux
Kernel, Second Edition will
acquaint you with all the
inner workings of Linux, but
is more than just an academic
exercise. You'll learn what
conditions bring out Linux's
best performance, and you'll
see how it meets the
challenge of providing good
system response during
process scheduling, file
access, and memory
management in a wide variety
of environments. If knowledge
is power, then this book will
help you make the most of
your Linux system.**

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

***Get under the hood of Xen,
the high performance
virtualization software.***

***Understanding the Linux
Virtual Memory Manager
With C and GNU Development
Tools***

***Understanding the Linux
Kernel***

***The Linux Networking
Architecture***

***Create user-kernel interfaces,
work with peripheral I/O, and
handle hardware interrupts***

Learning Kali Linux

**Over the last few years, Linux
has grown both as an operating
system and a tool for personal
and business use.**

**Simultaneously becoming more
user friendly and more powerful**

as a back-end system, Linux has achieved new plateaus: the newer filesystems have solidified, new commands and tools have appeared and become standard, and the desktop--including new desktop environments--have proved to be viable, stable, and readily accessible to even those who don't consider themselves computer gurus. Whether you're using Linux for personal software projects, for a small office or home office (often termed the SOHO environment), to provide services to a small group of colleagues, or to administer a site responsible for millions of email and web

connections each day, you need quick access to information on a wide range of tools. This book covers all aspects of administering and making effective use of Linux systems. Among its topics are booting, package management, and revision control. But foremost in Linux in a Nutshell are the utilities and commands that make Linux one of the most powerful and flexible systems available. Now in its fifth edition, Linux in a Nutshell brings users up-to-date with the current state of Linux. Considered by many to be the most complete and authoritative command reference for Linux available, the book

covers all substantial user, programming, administration, and networking commands for the most common Linux distributions. Comprehensive but concise, the fifth edition has been updated to cover new features of major Linux distributions. Configuration information for the rapidly growing commercial network services and community update services is one of the subjects covered for the first time. But that's just the beginning. The book covers editors, shells, and LILO and GRUB boot options. There's also coverage of Apache, Samba, Postfix, sendmail, CVS, Subversion, Emacs, vi, sed,

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gawk, and much more.

Everything that system administrators, developers, and power users need to know about Linux is referenced here, and they will turn to this book again and again.

“Probably the most wide ranging and complete Linux device driver book I’ve read.” --Alan Cox,

Linux Guru and Key Kernel Developer “Very comprehensive and detailed, covering almost every single Linux device driver type.” --Theodore Ts’o, First Linux Kernel Developer in North America and Chief Platform Strategist of the Linux

Foundation The Most Practical Guide to Writing Linux Device

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Drivers Linux now offers an exceptionally robust environment for driver development: with today's kernels, what once required years of development time can be accomplished in days. In this practical, example-driven book, one of the world's most experienced Linux driver developers systematically demonstrates how to develop reliable Linux drivers for virtually any device. Essential Linux Device Drivers is for any programmer with a working knowledge of operating systems and C, including programmers who have never written drivers before. Sreekrishnan

Venkateswaran focuses on the essentials, bringing together all the concepts and techniques you need, while avoiding topics that only matter in highly specialized situations. Venkateswaran begins by reviewing the Linux 2.6 kernel capabilities that are most relevant to driver developers. He introduces simple device classes; then turns to serial buses such as I2C and SPI; external buses such as PCMCIA, PCI, and USB; video, audio, block, network, and wireless device drivers; user-space drivers; and drivers for embedded Linux—one of today's fastest growing areas of Linux development. For each,

Venkateswaran explains the technology, inspects relevant kernel source files, and walks through developing a complete example. • Addresses drivers discussed in no other book, including drivers for I2C, video, sound, PCMCIA, and different types of flash memory • Demystifies essential kernel services and facilities, including kernel threads and helper interfaces • Teaches polling, asynchronous notification, and I/O control • Introduces the Inter-Integrated Circuit Protocol for embedded Linux drivers • Covers multimedia device drivers using the Linux-Video subsystem and Linux-Audio

framework • Shows how Linux implements support for wireless technologies such as Bluetooth, Infrared, WiFi, and cellular networking • Describes the entire driver development lifecycle, through debugging and maintenance • Includes reference appendixes covering Linux assembly, BIOS calls, and Seq files

This unique Linux networking tutorial reference provides students with a practical overview and understanding of the implementation of networking protocols in the Linux kernel. By gaining a familiarity with the Linux kernel architecture, students can

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functionality of protocol
instances. -- Provided by
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and multithreading techniques**

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Programming

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**- Char Device Drivers and Kernel
Synchronization**

**Configuring, Using, and
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**Programming Environment
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UNIX and Linux System
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cloud, and virtualized
computing systems have
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the Cloud focuses on Linux® and Unix® performance, while illuminating performance issues that are relevant to all operating systems. You'll gain deep insight into how systems work and perform, and learn methodologies for analyzing and improving system and application performance. Gregg presents examples from bare-metal systems and virtualized cloud tenants running Linux-based Ubuntu®, Fedora®, CentOS, and the illumos-based Joyent® SmartOSTM and OmniTI OmniOS®. He systematically covers modern systems

performance, including the "traditional" analysis of CPUs, memory, disks, and networks, and new areas including cloud computing and dynamic tracing. This book also helps you identify and fix the "unknown unknowns" of complex performance: bottlenecks that emerge from elements and interactions you were not aware of. The text concludes with a detailed case study, showing how a real cloud customer issue was analyzed from start to finish."--Back cover.

**Talking Directly to the Kernel
and C Library**