
Linux Application Development 2nd Edition

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WATSON HANNAH

Linux: Embedded
Development John
Wiley & Sons
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 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 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. 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 and BusyBox commands.

With C and GNU Development Tools

Packt Publishing Ltd
This book provides a holistic approach to teaching developers GNU/Linux programming using APIs, tools, communication, and scripting. Covering a wide range of topics, the book is split into five parts: The GNU/Linux Operating System; GNU Tools; Processes; Communication; and Coordination; Shells and Scripting; and Debugging.

The Linux Command Line, 2nd Edition

CRC Press
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.

Musings on Linux and Open Source by an Accidental Revolutionary
No Starch Press

Open source provides the competitive advantage in the Internet Age. According

to the August Forrester Report, 56 percent of IT managers interviewed at Global 2,500 companies are already using some type of open source software in their infrastructure and another 6 percent will install it in the next two years. This revolutionary model for collaborative software development is being embraced and studied by many of the biggest players in the high-tech industry, from Sun Microsystems to IBM to Intel. The Cathedral & the Bazaar is a must for anyone who cares about the future of the computer industry or the dynamics of the information economy. Already, billions of dollars have been made and lost based on the ideas in this book. Its conclusions

will be studied, debated, and implemented for years to come. According to Bob Young, "This is Eric Raymond's great contribution to the success of the open source revolution, to the adoption of Linux-based operating systems, and to the success of open source users and the companies that supply them." The interest in open source software development has grown enormously in the past year. This revised and expanded paperback edition includes new material on open source developments in 1999 and 2000. Raymond's clear and effective writing style accurately describing the benefits of open source software has been key to its success. With

major vendors creating acceptance for open source within companies, independent vendors will become the open source story in 2001.

Embedded Linux Systems with the Yocto Project Apress
Over 79 hands-on recipes for professional embedded Linux developers to optimize and boost their Yocto Project know-how
Key Features
Optimize your Yocto setup to speed up development and debug build issues
Use what is quickly becoming the standard embedded Linux product builder framework—the Yocto Project Recipe-based implementation of best practices to optimize your Linux system
Book Description
The Yocto Project has become the de facto

distribution build framework for reliable and robust embedded systems with a reduced time to market. You'll get started by working on a build system where you set up Yocto, create a build directory, and learn how to debug it. Then, you'll explore everything about the BSP layer, from creating a custom layer to debugging device tree issues. In addition to this, you'll learn how to add a new software layer, packages, data, scripts, and configuration files to your system. You will then cover topics based on application development, such as using the Software Development Kit and how to use the Yocto project in various development

environments. Toward the end, you will learn how to debug, trace, and profile a running system. This second edition has been updated to include new content based on the latest Yocto release. What you will learn

- Optimize your Yocto Project setup to speed up development and debug build issues
- Use Docker containers to build Yocto Project-based systems
- Take advantage of the user-friendly Toaster web interface to the Yocto Project build system
- Build and debug the Linux kernel and its device trees
- Customize your root filesystem with already-supported and new Yocto packages
- Optimize your production systems by reducing the size of both the Linux kernel and root

filesystems Explore the mechanisms to increase the root filesystem security

Understand the open source licensing requirements and how to comply with them when cohabiting with proprietary programs

Create recipes, and build and run applications in C, C++, Python, Node.js, and Java

Who this book is for

If you are an embedded Linux developer with the basic knowledge of Yocto Project, this book is an ideal way to broaden your knowledge with recipes for embedded development.

Understanding the Linux Kernel Newnes

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.

"O'Reilly Media, Inc."

Users of the popular programming toolkit for developing Linux applications will find detailed and advanced coverage in this book, which assumes knowledge of Unix development.

A Complete

Introduction John

Wiley & Sons

The Eclipse

environment solves the problem of having to maintain your own

Integrated

Development

Environment (IDE),

which is time

consuming and costly.

Embedded tools can

also be easily

integrated into Eclipse.

The C/C+++CDT is ideal

for the embedded

community with more

than 70% of embedded

developers using this

language to write

embedded code.

Eclipse simplifies

embedded system

development and then

eases its integration

into larger platforms

and frameworks. In this

book, Doug Abbott

examines Eclipse, an

IDE, which can be vital

in saving money and

time in the design and

development of an

embedded system.

Eclipse was created by

IBM in 2001 and then

became an open-

source project in 2004.

Since then it has

become the de-facto IDE for embedded developers. Virtually all of the major Linux vendors have adopted this platform, including MontaVista, LynuxWorks, and Wind River. *Details the Eclipse Integrated Development Environment (IDE) essential to streamlining your embedded development process *Overview of the latest C/C++ Developer's Toolkit (CDT) *Includes case studies of Eclipse use including Monta Vista, LynuxWorks, and Wind River

Embedded Linux Development Using Eclipse "O'Reilly Media, Inc."

Learn Linux, and take your career to the next level! Linux Essentials, 2nd Edition provides a solid foundation of

knowledge for anyone considering a career in information technology, for anyone new to the Linux operating system, and for anyone who is preparing to sit for the Linux Essentials Exam. Through this engaging resource, you can access key information in a learning-by-doing style. Hands-on tutorials and end-of-chapter exercises and review questions lead you in both learning and applying new information—information that will help you achieve your goals! With the experience provided in this compelling reference, you can sit down for the Linux Essentials Exam with confidence. An open source operating system, Linux is a UNIX-based platform that is freely

updated by developers. The nature of its development means that Linux is a low-cost and secure alternative to other operating systems, and is used in many different IT environments. Passing the Linux Essentials Exam prepares you to apply your knowledge regarding this operating system within the workforce. Access lessons that are organized by task, allowing you to quickly identify the topics you are looking for and navigate the comprehensive information presented by the book Discover the basics of the Linux operating system, including distributions, types of open source applications, freeware, licensing, operations, navigation, and more Explore command

functions, including navigating the command line, turning commands into scripts, and more Identify and create user types, users, and groups Linux Essentials, 2nd Edition is a critical resource for anyone starting a career in IT or anyone new to the Linux operating system.

Linux Application Development "O'Reilly Media, Inc."

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.

Embedded Linux Development Using Yocto Project Cookbook
CRC Press

Optimize and boost your Linux-based system with Yocto Project and increase its reliability and robustness efficiently and cost-effectively. About This Book* Optimize your Yocto Project tools to develop efficient Linux-based projects* Practical approach to learning Linux development using Yocto Project* Demonstrates concepts in a practical and easy-to-understand way Who This Book Is For If you are an embedded Linux developer with a basic knowledge of Yocto Project and want to broaden your knowledge with

examples of embedded development, then this book is for you. This book is also for professionals who want to find new insights into working methodologies for Linux development. What You Will Learn* Understand the basic concepts involved in Poky workflows along with configuring and preparing the Poky build environment.* Configure a build server and customize images using Toaster.* Generate images and fit packages into created images using BitBake.* Support the development process by setting up and using Package feeds.* Debug Yocto Project by configuring Poky.* Build an image for the BeagleBone Black, RaspberryPi 3, and

Wandboard, and boot it from an SD card. In Detail Yocto Project is turning out to be the best integration framework for creating reliable embedded Linux projects. It has the edge over other frameworks because of its features such as less development time and improved reliability and robustness. Embedded Linux Development using Yocto Project starts with an in-depth explanation of all Yocto Project tools, to help you perform different Linux-based tasks. The book then moves on to in-depth explanations of Poky and BitBake. It also includes some practical use cases for building a Linux subsystem project using Yocto Project tools available for embedded Linux. The

book also covers topics such as SDK, recipetool, and others. By the end of the book, you will have learned how to generate and run an image for real hardware boards and will have gained hands-on experience at building efficient Linux systems using Yocto Project. Style and approach A clear, concise, and straightforward book that will enable you to use and implement the latest features of Yocto Project.

Linux System

Programming Packt Publishing Ltd

Linux for Developers shows you how to start writing great code for Linux, whether you're a Linux user with little or no coding experience, or an experienced Windows programmer.

Leading IT trainer/author William "Bo" Rothwell begins with a clear and up-to-date review of modern open source software, including the licensing arrangements and tradeoffs all developers need to understand. He presents essential skills for both Linux command line and GUI environments, introducing text editors and other tools for efficient coding. Building on this knowledge, Rothwell introduces scripting tools such as Bash, Python, and Perl, as well as traditional object-oriented programming languages such as Java, C++, and C. Finally, he presents a full section on the powerful Git version control system, teaching skills you can

use in Linux and many other environments. Access Linux systems, use GUIs, and work at the command line Learn how Linux organizes files and navigate its filesystem Use basic developer commands such as gzip and grep Edit programs with vi and vim, and explore alternative editors Perform basic sysadmin tasks that developers often need to handle Compare Linux languages to choose the best one for each task Write Bash scripts that interact with users or other shell features Program with Python and Perl: flow control, variables, and more Understand Linux features related to building C, C++, and Java programs Stay on top of complex projects with GIT revision

control Work in GIT: staging, committing, branches, diffs, merges, and patches Manage local and remote GIT repositories This guide's modular coverage helps you quickly access whatever information you need right now.

Mastering Embedded Linux Programming

"O'Reilly Media, Inc." In-depth instruction and practical techniques for buildingwith the BeagleBone embedded Linux platform Exploring BeagleBone is a hands-on guide to bringinggadgets, gizmos, and robots to life using the popular BeagleBoneembedded Linux platform. Comprehensive content and deep detailprovide more than just a BeagleBone

instruction manual—you'll 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 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 and online peer support help you transition from beginner to expert as you master the techniques presented in Exploring BeagleBone, the practical handbook for the popular computing platform.

Create fast and reliable embedded solutions with Linux 5.4 and the Yocto Project 3.1 (Dunfell) Pearson

Education

Implement a SOHO or SMB Linux infrastructure to expand your business and associated IT capabilities. Backed by the expertise and experienced guidance of the authors, this book provides everything you need to move your business forward. Pro Linux System Administration makes it easy for small- to medium-sized businesses to enter the world of zero-cost software running on Linux and covers all the distros you might want to use, including Red Hat, Ubuntu, Debian, and CentOS. Pro Linux System Administration takes a layered, component-based approach to open source business systems, while training

system administrators as the builders of business infrastructure. Completely updated for this second edition, Dennis Matotek takes you through an infrastructure-as-code approach, seamlessly taking you through steps along the journey of Linux administration with all you need to master complex systems. This edition now includes Jenkins, Ansible, Logstash and more. What You'll Learn: Understand Linux architecture Build, back up, and recover Linux servers Create basic networks and network services with Linux Build and implement Linux infrastructure and services including mail, web, databases, and file and print Implement Linux security Resolve Linux

performance and capacity planning issues Who This Book Is For: Small to medium-sized business owners looking to run their own IT, system administrators considering migrating to Linux, and IT systems integrators looking for an extensible Linux infrastructure management approach.

Programming Embedded Systems

"O'Reilly Media, Inc."

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).

Beginning

Linux?Programming

Linux Application Development

The open source nature of Linux has always intrigued embedded engineers, and the latest kernel releases have provided new features enabling more robust functionality for embedded applications. Enhanced real-time performance, easier porting to new architectures, support for microcontrollers and an improved I/O system give embedded engineers even more reasons to love Linux! However, the rapid evolution of the Linux world can result in an eternal search for new information sources

that will help embedded programmers to keep up! This completely updated second edition of noted author Doug Abbott's respected introduction to embedded Linux brings readers up-to-speed on all the latest developments. This practical, hands-on guide covers the many issues of special concern to Linux users in the embedded space, taking into account their specific needs and constraints. You'll find updated information on:

- The GNU toolchain
- Configuring and building the kernel
- BlueCat Linux
- Debugging on the target
- Kernel Modules
- Devices Drivers
- Embedded Networking
- Real-time programming tips and

techniques • The RTAI environment • And much more The accompanying CD-ROM contains all the source code from the book's examples, helpful software and other resources to help you get up to speed quickly. This is still the reference you'll reach for again and again! * 100+ pages of new material adds depth and breadth to the 2003 embedded bestseller. * Covers new Linux kernel 2.6 and the recent major OS release, Fedora. * Gives the engineer a guide to working with popular and cost-efficient open-source code.

Developing Linux Applications with GTK+ and GDK

Prentice Hall

The wide range of applications available

in GNU/Linux includes not only pure applications, but also tools and utilities for the GNU/Linux environment. GNU/Linux Application Programming, Second Edition takes a holistic approach to teaching developers the ins-and-outs of GNU/Linux user-space programming using APIs, tools, communication, and scripting. The book is split into 5 parts, covering introduction/architecture, major tools (such as GCC, make, etc.), application development topics (such as important libraries and interfaces such as POSIX), shells and scripting, and testing, performance, and debugging. The book introduces programmers to the

environment from the lowest layers (kernel, device drivers, modules) to the user layer (applications, libraries, tools), using an evolutionary approach that builds on knowledge to cover the more complex aspects of the operating system.

GNU/Linux Application Programming, Second Edition Prentice Hall

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, 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. *Tools and Techniques for Building with Embedded Linux* "O'Reilly Media, Inc." Harness the power of Linux to create versatile and robust

embedded solutions
Key Features Learn how to develop and configure robust embedded Linux devices Explore the new features of Linux 5.4 and the Yocto Project 3.1 (Dunfell) Discover different ways to debug and profile your code in both user space and the Linux kernel Book Description Embedded Linux runs many of the devices we use every day. From smart TVs and Wi-Fi routers to test equipment and industrial controllers, all of them have Linux at their heart. The Linux OS is one of the foundational technologies comprising the core of the Internet of Things (IoT). This book starts by breaking down the fundamental elements that underpin all

embedded Linux projects: the toolchain, the bootloader, the kernel, and the root filesystem. After that, you will learn how to create each of these elements from scratch and automate the process using Buildroot and the Yocto Project. As you progress, the book explains how to implement an effective storage strategy for flash memory chips and install updates to a device remotely once it's deployed. You'll also learn about the key aspects of writing code for embedded Linux, such as how to access hardware from apps, the implications of writing multi-threaded code, and techniques to manage memory in an efficient way. The final chapters demonstrate how to debug your code,

whether it resides in apps or in the Linux kernel itself. You'll also cover the different tracers and profilers that are available for Linux so that you can quickly pinpoint any performance bottlenecks in your system. By the end of this Linux book, you'll be able to create efficient and secure embedded devices using Linux. What you will learn Use Buildroot and the Yocto Project to create embedded Linux systems Troubleshoot BitBake build failures and streamline your Yocto development workflow Update IoT devices securely in the field using Mender or balena Prototype peripheral additions by reading schematics, modifying device trees, soldering breakout boards, and

probing pins with a logic analyzer Interact with hardware without having to write kernel device drivers Divide your system up into services supervised by BusyBox runit Debug devices remotely using GDB and measure the performance of systems using tools such as perf, ftrace, eBPF, and Callgrind Who this book is for If you're a systems software engineer or system administrator who wants to learn Linux implementation on embedded devices, then this book is for you. Embedded systems engineers accustomed to programming for low-power microcontrollers can use this book to help make the leap to high-speed systems on chips that can run Linux. Anyone

responsible for developing new hardware that needs to run Linux will also find this book useful. Basic working knowledge of the POSIX standard, C programming, and shell scripting is assumed.

Learn to Build Systems for Your Business Using Free and Open Source Software John Wiley & Sons

Linux: The Textbook, Second Edition provides comprehensive coverage of the contemporary use of the Linux operating system for every level of student or practitioner, from beginners to advanced users. The text clearly illustrates system-specific commands and features using Debian-family Debian, Ubuntu, and Linux Mint, and

RHEL-family CentOS, and stresses universal commands and features that are critical to all Linux distributions. The second edition of the book includes extensive updates and new chapters on system administration for desktop, stand-alone PCs, and server-class computers; API for system programming, including thread programming with pthreads; virtualization methodologies; and an extensive tutorial on systemd service management. Brand new online content on the CRC Press website includes an instructor's workbook, test bank, and In-Chapter exercise solutions, as well as full downloadable chapters on Python Version 3.5

programming, ZFS, TC shell programming, advanced system programming, and more. An author-hosted GitHub website also features updates, further references, and errata. Features New or updated coverage of file system, sorting, regular expressions, directory and file searching, file compression and encryption, shell scripting, system programming, client-server-based network programming, thread programming with pthreads, and system administration

Extensive in-text pedagogy, including chapter objectives,

student projects, and basic and advanced student exercises for every chapter

Expansive electronic downloads offer advanced content on Python, ZFS, TC shell scripting, advanced system programming, internetworking with Linux TCP/IP, and many more topics, all featured on the CRC Press website

Downloadable test bank, work book, and solutions available for instructors on the CRC Press website

Author-maintained GitHub repository provides other resources, such as live links to further references, updates, and errata