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4th Edition

# Linux Device Drivers

WHERE THE KERNEL MEETS THE HARDWARE



Jessica McKellar, Alessandro Rubini,  
Jonathan Corbet & Greg Kroah-Hartman

# Linux Device Drivers 4th Edition

**Martin Freiss**



## **Linux Device Drivers 4th Edition:**

*Linux Device Drivers* Jessica McKellar, Alessandro Rubini, Jonathan Corbet, 2015-02-25 Having already helped two generations of programmers explore Linux and write devices the fourth edition of this classic book delves into tty USB and HCI devices such as keyboards in addition to basic character devices Linux Device Drivers includes numerous full featured examples that you can compile and run without special hardware Written by well known leaders in Linux development and programming this book covers significant changes to Version 3.2 of the Linux kernel the basis of the Precise Pangolin release of Ubuntu All you need to get started is an understanding of the C programming language and some background in Unix system calls Learn how to support computer peripherals under the Linux operating system Develop and write software for new hardware that Linux supports Understand the basics of Linux operation even if you don't expect to write a driver Dive into new chapters on video audio wireless and Bluetooth devices As the operating system for Android and many embedded systems Linux constantly needs new device drivers This book helps you get it done

**Linux Device Drivers** Jonathan Corbet, Alessandro Rubini, Greg Kroah-Hartman, 2005-02-07 Device drivers literally drive everything you're interested in disks monitors keyboards modems everything outside the computer chip and memory And writing device drivers is one of the few areas of programming for the Linux operating system that calls for unique Linux specific knowledge For years now programmers have relied on the classic Linux Device Drivers from O'Reilly to master this critical subject Now in its third edition this bestselling guide provides all the information you'll need to write drivers for a wide range of devices Over the years the book has helped countless programmers learn how to support computer peripherals under the Linux operating system how to develop and write software for new hardware under Linux the basics of Linux operation even if they are not expecting to write a driver The new edition of Linux Device Drivers is better than ever The book covers all the significant changes to Version 2.6 of the Linux kernel which simplifies many activities and contains subtle new features that can make a driver both more efficient and more flexible Readers will find new chapters on important types of drivers not covered previously such as consoles USB drivers and more Best of all you don't have to be a kernel hacker to understand and enjoy this book All you need is an understanding of the C programming language and some background in Unix system calls And for maximum ease of use the book uses full featured examples that you can compile and run without special hardware Today Linux holds fast as the most rapidly growing segment of the computer market and continues to win over enthusiastic adherents in many application areas With this increasing support Linux is now absolutely mainstream and viewed as a solid platform for embedded systems If you're writing device drivers you'll want this book In fact you'll wonder how drivers are ever written without it

**Linux Device Drivers** Jonathan Corbet, Alessandro Rubini, Greg Kroah-Hartman, 2005-02-07 A guide to help programmers learn how to support computer peripherals under the Linux operating system and how to develop new hardware under Linux This third edition covers all the significant changes to Version 2.6 of the Linux kernel Includes full

featured examples that programmers can compile and run without special hardware [Open Source for the Enterprise](#) Dan Woods, Gautam Guliani, 2005-07-27 This book provides something far more valuable than either the cheerleading or the fear mongering one hears about open source The authors are Dan Woods former CTO of TheStreet com and a consultant and author of several books about IT and Gautam Guliani Director of Software Architecture at Kaplan Test Prep Admissions Each has used open source software for some 15 years at IT departments large and small They have collected the wisdom of a host of experts from IT departments open source communities and software companies Open Source for the Enterprise provides a top to bottom view not only of the technology but of the skills required to manage it and the organizational issues that must be addressed [Linux Device Driver Development](#) John Madieu, 2022-04-21 Get up to speed with the most important concepts in driver development and focus on common embedded system requirements such as memory management interrupt management and locking mechanisms Key Features Write feature rich and customized Linux device drivers for any character SPI and I2C device Develop a deep understanding of locking primitives IRQ management memory management DMA and so on Gain practical experience in the embedded side of Linux using GPIO IIO and input subsystems Book Description Linux is by far the most used kernel on embedded systems Thanks to its subsystems the Linux kernel supports almost all of the application fields in the industrial world This updated second edition of Linux Device Driver Development is a comprehensive introduction to the Linux kernel world and the different subsystems that it is made of and will be useful for embedded developers from any discipline You ll learn how to configure tailor and build the Linux kernel Filled with real world examples the book covers each of the most used subsystems in the embedded domains such as GPIO direct memory access interrupt management and I2C SPI device drivers This book will show you how Linux abstracts each device from a hardware point of view and how a device is bound to its driver s You ll also see how interrupts are propagated in the system as the book covers the interrupt processing mechanisms in depth and describes every kernel structure and API involved This new edition also addresses how not to write device drivers using user space libraries for GPIO clients I2C and SPI drivers By the end of this Linux book you ll be able to write device drivers for most of the embedded devices out there What you will learn Download configure build and tailor the Linux kernel Describe the hardware using a device tree Write feature rich platform drivers and leverage I2C and SPI buses Get the most out of the new concurrency managed workqueue infrastructure Understand the Linux kernel timekeeping mechanism and use time related APIs Use the regmap framework to factor the code and make it generic Offload CPU for memory copies using DMA Interact with the real world using GPIO IIO and input subsystems Who this book is for This Linux OS book is for embedded system and embedded Linux enthusiasts developers who want to get started with Linux kernel development and leverage its subsystems Electronic hackers and hobbyists interested in Linux kernel development as well as anyone looking to interact with the platform using GPIO IIO and input subsystems will also find this book useful **Computer Engineering and Networking** W. Eric Wong, Tingshao

Zhu,2014-02-03 This book aims to examine innovation in the fields of computer engineering and networking The book covers important emerging topics in computer engineering and networking and it will help researchers and engineers improve their knowledge of state of art in related areas The book presents papers from The Proceedings of the 2013 International Conference on Computer Engineering and Network CENet2013 which was held on 20 21 July in Shanghai China **Dr. Dobb's Journal** ,2005 **SELinux** Bill McCarty,2005 Offers a readable practical introduction and step by step procedural manual for the installation configuration and use of SELinux a kernel module and set of Linux programs developed by the National Security Agency to help protect computers running on Linux Original All users *Mastering Linux Device Driver Development* John Madieu,2021-01-08 Develop advanced Linux device drivers for embedded systems mastering real world frameworks like PCI ALSA SoC and V4L2 with practical code examples and debugging techniques Key Features Gain hands on expertise with real Linux subsystems PCI ALSA SoC V4L2 and power management Apply advanced techniques for kernel debugging regmap API and custom hardware integration Build robust drivers through step by step examples and practical engineering insights Book DescriptionLinux is one of the fastest growing operating systems around the world and in the last few years the Linux kernel has evolved significantly to support a wide variety of embedded devices with its improved subsystems and a range of new features With this book you ll find out how you can enhance your skills to write custom device drivers for your Linux operating system Mastering Linux Device Driver Development provides complete coverage of kernel topics including video and audio frameworks that usually go unaddressed You ll work with some of the most complex and impactful Linux kernel frameworks such as PCI ALSA for SoC and Video4Linux2 and discover expert tips and best practices along the way In addition to this you ll understand how to make the most of frameworks such as NVMEM and Watchdog Once you ve got to grips with Linux kernel helpers you ll advance to working with special device types such as Multi Function Devices MFD followed by video and audio device drivers By the end of this book you ll be able to write feature rich device drivers and integrate them with some of the most complex Linux kernel frameworks including V4L2 and ALSA for SoC What you will learn Explore and adopt Linux kernel helpers for locking work deferral and interrupt management Understand the Regmap subsystem to manage memory accesses and work with the IRQ subsystem Get to grips with the PCI subsystem and write reliable drivers for PCI devices Write full multimedia device drivers using ALSA SoC and the V4L2 framework Build power aware device drivers using the kernel power management framework Find out how to get the most out of miscellaneous kernel subsystems such as NVMEM and Watchdog Who this book is for This book is for embedded developers Linux system engineers and advanced programmers seeking to master Linux device driver development for custom hardware and peripherals Readers should have C programming experience and a basic grasp of kernel concepts Ideal for those wanting practical project based guidance on leveraging frameworks such as PCI ALSA SoC V4L2 and power management to build production grade drivers **Cracking DES** Electronic Frontier Foundation,1998 In clear easy to read and understand

language this controversial book reveals the full technical details on how researchers and data recovery engineers can build a DES cracker It includes design specifications and board schematics as well as full source code for the custom chip

**ADO ActiveX Data Objects** Jason T. Roff,2001 The architecture of ADO ActiveX Data Objects Microsoft s newest form of database communication is simple concise and efficient This indispensable reference takes a comprehensive look at every object collection method and property of ADO for developers who want to get a leg up on this technology **Linux Journal** ,2004

*Protecting Networks with SATAN* Martin Freiss,1998 SATAN performs security audits scanning host computers for security vulnerabilities This book describes how to install and use SATAN and how to adapt it to local requirements and increase its knowledge of specific security vulnerabilities

**Web Performance Tuning** Patrick Killelea,1998 Get the best performance from the Web Aimed at Web administrators content developers and users Web Performance Tuning covers general principles of performance such as network latency and caching It also gives specific tips on tuning Web browsers Web servers operating systems and hardware for best performance

Learning Word Programming Steven Roman,1998 This no nonsense book delves into the core aspects of VBA programming enabling users to increase their productivity and power over Microsoft Word It takes the reader step by step through writing VBA macros and programs illustrating how to generate tables of a particular format manage shortcut keys create FAX cover sheets and reformat documents *PalmPilot* David Pogue,1998 This bible of PalmPilot covers Palm III as well as OEM models such as the IBM Workpad Dense with undocumented information it contains hundreds of timesaving tips The CD ROM contains 850 free and shareware programs for the Pilot in a searchable FileMaker based runtime database

**C++** Gregory Satir,Doug Brown,1995 A primer for C programmers transitioning to C and designed to get users up to speed quickly this book tells users just what they need to learn first Covering a subset of the features of C the user can actually use this subset to get familiar with the basics of the language The book includes sidebars that give overviews of advanced features not covered

Oracle PL/SQL Programming Steven Feuerstein,1999 This guide is designed to bring you up to speed as quickly as possible on the new PL SQL features of Oracle8i It covers autonomous transactions invoker rights new built in packages and much more

**Java Servlet Programming** Jason Hunter,William Crawford,1998 Java servlets offer a fast powerful portable replacement for CGI scripts This book covers everything one needs to write effective servlets Topics include serving dynamic Web content maintaining state information session tracking database connectivity using JDBC and applet servlet communication

**Linux in a Nutshell** Jessica Perry Hekman,1997 Linux in a Nutshellcovers the core commands available on common Linux distributions This isn t a scaled down quick reference of common commands but a complete reference containing all user programming administration and networking commands Contents include Commands with complete lists of options Shell syntax for thebash csh andtcshshells Pattern matching emacs vi andexediting commands sedandgawkcommands Software development commands This book also documents a wide range of GNU tools for UNIX users who have GNU versions of standard UNIX

tools You'll find all the essential commands you need to run your system as well as all the commands that historically have been included on UNIX systems. Specialized packages included in most distributions of Linux are not covered. Linux in a Nutshell is a must for any Linux user; it weighs less than a stack of manual pages but gives you everything you need for common day-to-day use.

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