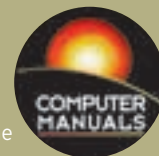


# BOOKS

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## Linux Programming White Papers

Authors: David Rusling et al  
Publisher: Coriolis  
ISBN: 157610437  
Price: £17.49  
Reviewer: Martin Howse



IT'S  
FANTASTIC TO  
SEE THE  
ARCHITECTURE  
OF A WORKING  
SYSTEM LAID  
OUT WITH SUCH  
CLARITY

Linux is a great place to start if you're interested in learning about how operating systems really work. It's easy to take a look under the bonnet and peer at the masses of kernel source code but a good guide is essential.

*Linux Programming White Papers* is a printed collection of five classic online books from different authors which make up a good part of the Linux Documentation Project. As the title suggests, the five books collected here cover all aspects of the kernel and programming under Linux.

The first, *The Linux Kernel*, is an excellent beginner's introduction to the inner workings of the kernel and OS and also provides a solid grounding in general operating system design and theory.

Although some pretty complex areas such as filesystems and routing are covered in great depth, the writing is at all times clear and lucid, building up from simple theory to more complex practice. There are plenty of diagrams and examples and it's fantastic to see the architecture of a working system laid out with such clarity.

*The Kernel Module Programming Guide* which is second up, sets out with the clear intention of teaching module programming. There's more of a tutorial feel here, and only a few pages in we're launched into the first code example. These examples begin with the simplest code and progress through chapters covering system calls, schedules and interrupts. All a would-be kernel module hacker could ask for is here.

*The Linux Programmer's Guide* is a very functional, concise guide to all aspects of coding under Linux. There's a lot to cover here and the material isn't suitable for the absolute beginner, assuming as it does a fair amount of previous knowledge. It's a worthy reference guide with very useful code snippets.

The last two books, *Conceptual Architecture of the Linux Kernel* and its companion work *Concrete Architecture*, are essential reading for anyone more interested in OS design. *Conceptual Architecture* is more about creating an overall high-level description of the system, whereas *Concrete Architecture* covers the real-life working system in more detail.

Though of course these books are part of a freely available online project, it is not only pleasant to have five classic core programming works easily to hand, but Coriolis also actively supports the open source movement through the sales of this book.

CLASSIC  
TITLE

## Linux Programming A Beginner's Guide

Author: Richard Petersen  
Publisher: Osborne  
ISBN: 0072127430  
Price: £21.99  
Martin Howse



IT SEEMS A GLARING  
OMISSION FOR A  
BOOK ON LINUX  
PROGRAMMING NOT  
TO DEAL AT ANY  
LEVEL WITH  
CODING IN C

There are plenty of Linux programming guides around at the moment, but very few are aimed at the absolute novice. This beginner's guide takes a self-paced tutorial approach to basic programming skills using the BASH and TCSH shells, Perl, Tcl/Tk and Gawk, as well as GUI programming under GNOME and KDE. The style is modular with each section covering a specific area and using a mix of code examples, theory, projects, Q&A sections and test questions. This schoolroom approach can seem dry at times and it would have been better to have a lot more source code and working projects to encourage the beginner to take things further.

Although aimed at the absolute beginner with no previous programming experience, the chapters covering GNOME and KDE GUI development obviously do require a reasonable working knowledge of C and C++. It seems a glaring omission for a book on Linux programming not to deal at any level with coding in C and the vast array of associated GNU development tools.

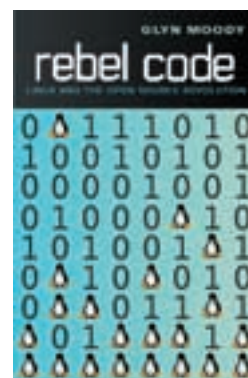
What the guide does cover though is well written for the

novice and very thorough. The chapters covering BASH and Perl are probably the most useful and would provide a good grounding for a beginner wishing to use simple scripting techniques in their everyday work. Common commands and structures are covered in good detail and, to some extent, this would make a good reference work.

There is little of the excitement of coding here, though, and the examples are far too simple to be stimulating for even an absolute beginner. Those interested in entering the world of Linux programming would be far better served to dive right into a more advanced work.

## Rebel Code

Author: Glyn Moody  
Publisher: Allen Lane - The Penguin Press  
ISBN: 0713995203  
Price: £12.99  
Daniel James



MOODY SUGGESTS  
THAT THE DESIRE  
FOR ARTISTIC  
SATISFACTION  
PLAYS A GREAT  
PART IN THE  
CREATION OF CODE  
MASTERWORKS

A lucky guess back in 1996 that there might be something in the Linux phenomenon led Glyn Moody to interview Linus Torvalds. Since then, Moody has written a comprehensive history of Linux and the open source movement, starting with Linus but without neglecting the many other contributors to the project. Crucially, he acknowledges the massive contribution of Richard Stallman and his monkish existence sleeping in the office

between sessions spent creating GNU, and the system is referred to as GNU/Linux throughout.

The early work of Ted Ts'o and Alan Cox is covered, as well as those of the contributors that burnt out along the way, and the uncharitable reader will also discover 20-20 hindsight with which to mock the scepticism of Minix creator Andrew Tanenbaum, or those that thought the GNU Hurd kernel would be ready by now.

One of the key themes of the book is how Linux was created out of a series of chance events, the absence of any of which could have killed off the project. For example, many of the modestly-resourced hackers in the first phase of Linux development did not own the hardware that the more developed 386BSD variant of Unix required; a maths coprocessor and a whole hard disk dedicated to it. The reluctance of Tanenbaum to accept third-party improvements to Minix, the long release cycle of 386BSD and the AT&T lawsuit against it are also cited as factors which turned the hackers towards Linux.

Another theme is that hackers are best viewed as artists. To explain why someone would dedicate years of their life to a software project, some have claimed that hackers merely scratch practical 'itches' or lack a social life. Moody suggests that the desire for artistic satisfaction plays a greater part in the creation of code masterworks.

The book is not limited to the story of the Linux kernel and GNU software. The development of Apache, the Gimp, Mozilla, Perl, Sendmail and XFree86 are all outlined. How Linux came to have two major desktop GUI projects is also described, along with the bitter arguments that broke out as a consequence. The book also relates the Mindcraft benchmarking saga, the DVD case and the Kerberos controversy amongst other stories, covering events up until late 2000.

Aimed at the general business-success-story reader as well as the Linux user, *Rebel Code* is a

comprehensive overview of the free software movement to date.

## PHP 4 Bible

Authors: Tim Converse and Joyce Park  
 Publisher: IDG Books  
 ISBN: 0761527648  
 Price: £27.99  
 Martin Howse



EVEN AN ABSOLUTE BEGINNER WILL BE ABLE TO GET UP TO SPEED IN NO TIME WITH THIS ESSENTIAL OPEN SOURCE SERVER-SIDE LANGUAGE

PHP, which grew from the original 'Personal Home Page Tools', is now probably the most flexible server-side tool for creating dynamic database-driven web pages. So what's it got to do with Linux? It shares the same open source philosophy and a similar licence to the GPL. PHP also runs well as a module with Apache and SQL which form a perfect combination running under Linux.

And with PHP 4, many improvements have been made to the previous version, with the totally re-written core Zend engine and a wide array of built-in new functions.

The *PHP 4 Bible* is a very thorough guide to all aspects of this rapidly growing tool and language. Simple installation and server-side principles are covered briefly, before the basic syntax and structure of PHP is dealt with in depth.

Nearly half of this massive work covers types, structures, control functions and good coding style, introducing the core elements of PHP in a clear, easy style with plenty of handy code to get stuck

into and useful tables of functions. There's an essential chapter covering 'Basic PHP Gotchas'; common glitches and errors which the beginner may stumble over.

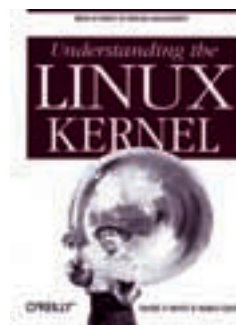
Database connectivity is a key feature of PHP and this central element is certainly not overlooked, with a complete SQL tutorial, a rundown of PHP/mySQL functions and several longer working code examples.

There's even room here for more advanced techniques such as object-oriented programming with PHP and using PHP with XML or Javascript. The chapter detailing how to enable PHP database connectivity to Javascript is particularly useful.

The *PHP 4 Bible* is an excellent, complete guide to all the ins and outs of PHP 4. There's a vast amount of information here and even an absolute beginner will be able to get up to speed in no time with this essential open source server-side language.

## Understanding the Linux Kernel

Authors: Daniel P. Bovet and Marco Cesati  
 Publisher: O'Reilly  
 ISBN: 0596000022  
 Price: £28.50  
 Martin Howse



AN EXCELLENT GUIDE FOR THOSE INTERESTED IN FINDING OUT HOW THE OS WORKS IN DETAIL THROUGH LOOKING AT THE SOURCE CODE ITSELF

This is another work which delves right into the kernel to present an inside view of Linux. It would function as an excellent guide for those interested in finding out how the OS works in detail through looking at the source code itself. An understanding of inner workings such as process scheduling and memory management is essential from a programming point of view and in order also to get the best from the system.

Much thought has obviously gone into how to approach and organise such a vast amount of material and information. The uncommented kernel code would occupy the best part of 25 similar books so some choices have to be made. Hardware issues, for example, are primarily discussed with reference to the x86 processors.

The guided tour of the Linux kernel begins with an overview of the key concepts and kernel architecture. All the key areas are sketched out here to provide a good foundation for the more detailed chapters which follow. The kernel version used throughout is Linux 2.2, but very usefully, anticipated changes in 2.4 are discussed at the end of each chapter.

The following chapters cover in great detail core functional areas of the OS such as memory management, process scheduling, system calls, kernel synchronisation and the virtual filesystem. Key ideas are thoroughly explained with excellent diagrams and a good amount of clearly formatted source code. All the code is indexed at the end so relevant snippets can easily be accessed.

Dealing as it does with such advanced topics, *Understanding the Linux Kernel* can be hard work at times but a lucid writing style and fast-moving pace keep it readable and stimulating. It's obviously not for the novice, but the level of detail is intense and this is certainly one of the most thorough dissections of a recent kernel available.

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