

Operating Systems: A Systematic View
(Sixth Edition)

操作系统基础教程

(第六版 · 影印版)

William S. Davis 著
T. M. Rajkumar

Davis & Rajkumar



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国外经典计算机科学教材

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William S. Davis, T.M. Rajkumar

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Preface

■ Philosophy and Perspective

The first edition of *Operating Systems: A Systematic View* was published in 1977. In those days, one company, IBM, dominated the computer industry. The first edition reflected that reality, but times have changed. Today, a typical computing environment consists of multiple computers from multiple vendors linked to form a network, and that new reality is a key driving force behind this sixth edition.

Although numerous changes have been made, *Operating Systems: A Systematic View* remains an *applied* introduction to operating systems. This is not a theoretical text. It is aimed at those who are interested in using (rather than designing) computers, operating systems, and networks. The intent is to show *why* operating systems are needed and *what*, at a functional level, they do.

The early editions of this book looked at operating systems from the perspective of an application programmer. Like the fifth edition, this edition expands that perspective a bit to include experienced users who may or may not know how to program. As before, the book assumes little or no mathematics beyond high school algebra. The only prerequisites are a reasonable understanding of basic computer concepts and a sincere interest in knowing what goes on beneath the surface of a computer application.

■ Changes from the Fifth Edition

In addition to technological updates throughout the text, a chapter on Macintosh OS X (14) has been added to the sixth edition, the Windows chapters (8, 12, and 19) have been updated to reflect the most current versions of this popular operating system, additional coverage of Linux has been integrated into the UNIX/Linux chapters (9, 13, and 20), and Part 5 has been substantially rewritten to incorporate the evolving communication infrastructure and network principles (Chapter 16), the Internet (Chapter 17), and the client/server model and security implications (Chapter 18).

Gone from the new edition is the fifth edition chapter on virtual machines (19), although key virtual machine concepts have been incorporated into other chapters. Additionally, the chapters on OS/JCL (11 and 12)

have been merged and streamlined to form a new Appendix D, and the contents of fifth edition Chapters 17 (Principles of Operation) and 18 (IBM MVS) have been merged to form a new Chapter 15 on MVS. For interested instructors, fifth edition Chapters 11, 12, 17, 18, and 19 are available for downloading on the book's companion Web site.

■ Sixth Edition Contents

The new edition retains the pace, level, and writing style of the earlier editions. As before, numerous illustrations closely follow the narrative and visually reinforce the concepts. The book also retains such chapter-level pedagogical features as learning objectives, summaries, key word lists, and review questions, and adds a set of thought-provoking exercises designed to encourage the student to think beyond the book.

Part 1 (Chapters 2-4) reviews essential computer concepts. The primary purpose of these three chapters is to ensure that all students start with a consistent technical base before moving on. Some students might find at least some of this material familiar.

Part 2 presents an overview of key operating system concepts. Chapter 5 discusses the user interface, the file system, and device management. Chapter 6 moves inside the operating system and introduces the more transparent memory and processor management functions. The intent of this section is to present a high-level, generic map of an operating system's primary functions. Later in the text when you begin reading about the internals of several different operating systems, these two chapters will help you make sense of the details.

Users and programmers communicate with an operating system through a user interface, the subject of Part 3. The primary focus of this section is using an interface or a command language to create and manipulate files. Chapters 7, 8, and 9 are presented as interactive tutorials on MS-DOS, Windows XP, and UNIX/Linux respectively. If possible, they should be read while you are sitting in front of a computer and following along, step by step.

Part 4 moves inside the computer. Chapter 10 introduces the Intel Pentium architecture, useful (though not essential) preparation for Chapters 11 (MS-DOS) and 12 (Windows XP). The material in Chapter 13 (UNIX and Linux Internals) is independent of the underlying hardware architecture. Chapter 14 is a new chapter on Macintosh OS X internals. Chapter 15 introduces selected principles underlying the traditional IBM mainframe architecture and describes the IBM MVS dispatching process.

Part 5 covers network operating systems. Chapter 16 introduces the communication infrastructure and key networking concepts, Chapter 17 describes the Internet and the World Wide Web, and Chapter 18 covers key client/server network concepts and explores security implications of networks. Chapters 19, 20, and 21 show how the concepts introduced in Chapter 18 are implemented using Windows 2003, Linux, and Novell NetWare respectively.

■ Supplements

The following supplementary materials are available to assist instructors and students:

- ▶ *Online Instructor's Manual*: Lecture/discussion suggestions and solutions to textbook review questions and exercises.
- ▶ *Test Bank*: Sample examination questions.
- ▶ *Online PowerPoint presentations*: An average of 27 slides per chapter, including virtually all the textbook figures.
- ▶ *Online, downloadable copies of selected fifth edition chapters*: Chapters 11 and 12 (IBM's OS/JCL), Chapter 17 (Traditional IBM Mainframe Operating Principles), Chapter 18 (IBM MVS), and Chapter 19 (Virtual Machines).

The Instructor's Manual, Test Bank, and PowerPoint presentations are available only to instructors through your Addison-Wesley sales representative, or e-mail Addison-Wesley (aw.cse@aw.com) for information on how to access them.

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We're excited about this new edition, and we sincerely hope it meets your needs.

WSD, Sarasota, Florida
TMR, Oxford, Ohio



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