微软编程圣典丛书（影印版）

Microsoft

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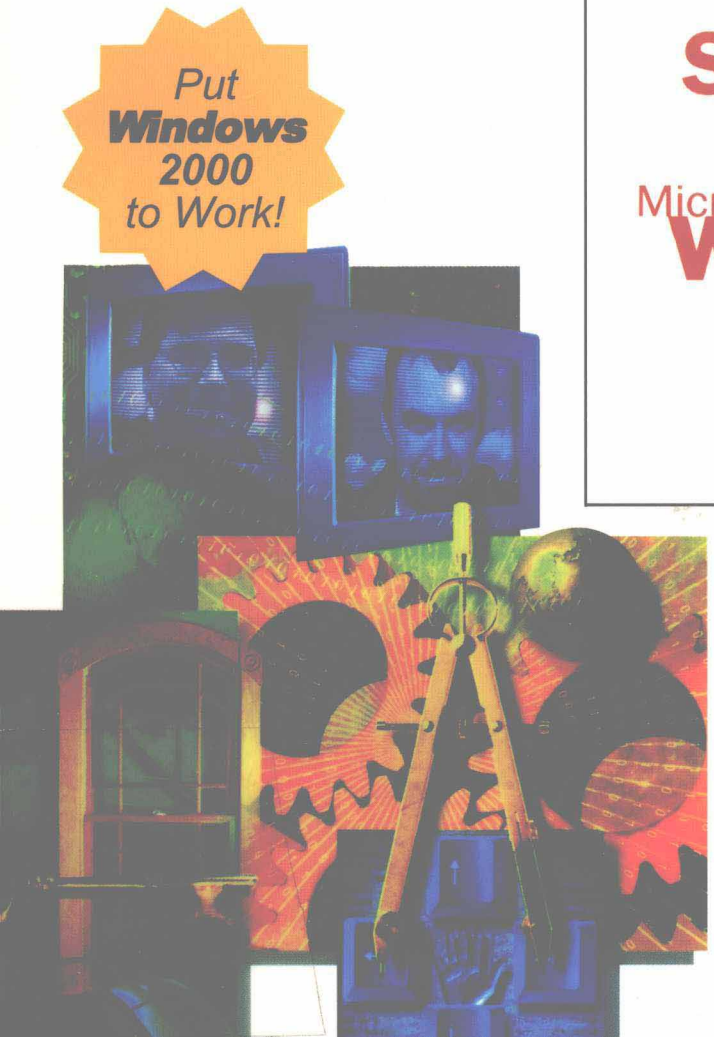
Microsoft® Windows® 2000 服务器端应用程序设计

（影印版）

Programming Server-Side Applications for Microsoft® Windows® 2000



- 来自微软的第一手技术资料，深入专业的编程技术
- 利用 Windows 2000 中的可伸缩性，安全性和远程管理特性，创建自定义服务
- 高级程序员必备

[美] Jeffrey Richter
Jason D.Clark 著

北京大学出版社

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Microsoft Windows 2000 服务器端应用程序设计

Microsoft公司 著

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内 容 简 介

本书是《微软编程圣典丛书（影印版）》之一，讲述 Windows 2000 下的服务器应用程序设计技巧，内容涉及访问控制、CPU 周期、进程间通信、设备 I/O、事件记录和性能监控等。为了增加本书的实用性，特以配套光盘的形式提供了丰富的程序实例、Microsoft Platform SDK(Windows 2000 版)、C++类以及本书的电子版。

本书由微软公司组织专家编写，具有相当的技术深度，是中、高级程序员必备的参考书。

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丛 书 序

世纪交替，IT 产业更加步履匆匆。

Microsoft 公司早已以其在编程方面的非凡成就闻名于世，并树立了在计算机软件领域和发展史上不可动摇的地位。毋庸置疑，该公司技术上的优势是其获得成功的重要因素之一。今天，它的技术不但已经变得非常强大，而且具有惊人的发展速度。尤其是 Windows 2000 技术的推出，更是展示了 Microsoft 的无穷魅力，它突然间提供了如此丰富的新特性，使我们仿佛在一瞬间便被淹没在 Windows 2000 浩瀚的技术海洋之中！

工欲善其事，必先利其器。作为 Windows 应用程序设计人员，必须紧密跟踪 Microsoft 公司的最新技术，深入 Microsoft Windows 编程的内幕，掌握关键的编程技术。这套《微软编程圣典丛书（影印版）》的推出，就是为了向有关的专业人员全面推介微软编程的核心技术，以便于他们设计高质量的 Windows 应用程序。

Microsoft 技术博大而精深，绝非某个人在短时间内所能掌握。为此，特按照技术上的逻辑关系组织成 9 个相对独立的部分，分别涉及基于服务器的应用程序、COM+基本服务、Windows 网络编程、国际化程序、MFC、Windows 编程、服务器端应用程序、Outlook 与 Exchange 编程、驱动程序模型等。每一部分的内容独立成册，集中讲述一组相关的编程技术。这套《微软编程圣典丛书（影印版）》共 9 本。特定编程领域的专业人员可以从中选取自己需要的一本或几本，使学习过程更加快速、省时、有效而直观。

这套丛书中的任何一本都涉及一门完整的编程技术，因此有着相当的深度，而且内容比较丰富。为了避免将其写成深奥而抽象的理论书，特在书中适当的位置穿插进许多贴切的程序实例。另外，每本书都有配套的 CD-ROM，内有书中的程序实例和本书的电子版。

本套丛书由 Microsoft 公司组织相关领域的专家编写。他们深谙 Microsoft 的编程技术内幕，具有丰富的程序开发经验，所以，这套丛书是他们智慧的结晶，是该领域极具权威性的著作，堪称独领风骚。

鉴于此，特向中、高级 Windows 应用程序设计人员郑重推荐这套佳作！

出版者

2000 年 9 月

INTRODUCTION

Microsoft Windows 2000 offers many features and subsystems designed specifically to handle an enterprise's mission-critical data-processing needs. These features and subsystems are not available on client operating systems such as Microsoft Windows 98. Only Windows 2000 offers the Service Control Manager (SCM), performance monitoring, event logging, security, asynchronous I/O, and so on. This book describes these features, explains the motivation to use them, and gives you the information you need to best leverage them.

This book does not attempt to explain basic Windows programming and assumes that you are already quite familiar with many Windows topics such as processes, threads, thread synchronization, DLLs, Unicode, structured exception handling, and memory management. If you need a refresher on any of these topics, I encourage you to consult *Programming Applications for Microsoft Windows, Fourth Edition* (Jeffrey Richter, Microsoft Press, 1999). The sample source code in the book you are reading requires you to be well acquainted with the C++ programming language.

Throughout this book, emphasis is placed on writing high-performance and robust services that are expected to stay running 24 hours a day, 7 days a week. Also, Microsoft is hard at work developing 64-bit Windows 2000. It is expected that many companies will eventually use 64-bit Windows to host their services since this system will offer greater performance and scalability. At the time of this writing, a 64-bit version of Windows has not been released. However, 64-bit Windows has been considered while developing all the source code in this book. The sample applications will build and run with little or no modification on 64-bit Windows once Microsoft makes it available.

What's in This Book

This book explains the features offered by Windows 2000 that are available to service developers. Here is a partial list of what this book has to offer:

- **Performance and scalability** Throughout the book, programming techniques are discussed that will make your software scale better than the majority of server software running on Windows

today. Techniques for improving your device I/O and interthread communication (ITC), which are common scalability bottlenecks, will improve your server's performance and cut costs, making your software more viable and competitive.

- **Security** One section is dedicated entirely to designing service software that takes advantage of the security features of Windows 2000. This section includes an exhaustive treatment of the ins and outs of integrating your service with the security features of the operating system.
- **Kerberos and the SSPI** The security section includes a chapter covering the powerful Kerberos security provider, new to Windows 2000. It also completely describes how to take advantage of it and other security providers such as NT LAN Manager (NTLM) and Secure Sockets Layer (SSL) by using the flexible Security Support Provider Interface (SSPI) functions. This information will help you develop software that communicates in a secure manner in your enterprise's intranet as well as on the global Internet!
- **Securing private objects** Chapter 10, "Access Control," completely covers private object security. The chapter includes text and sample code demonstrating how to use the powerful security features of the operating system to secure custom objects in your software.
- **64-bit Windows readiness** The text addresses 64-bit-specific issues; samples will build with little or no modification on 64-bit Windows (when it becomes available).
- **Practical sample applications** The sample applications on the companion CD describe a wealth of useful programming techniques while providing some very useful tools.
- **Fault tolerance** Unlike other books on programming, which commonly omit error handling from their discussions and code samples, this book focuses on fault tolerance in both the sample code and the chapter text. We have done this because we know that fault tolerance is of critical importance to the service developer.
- **Use of C++** The sample applications use C++ since many readers have requested it. As a result, the sample applications require fewer lines of code and their logic is easier to follow and understand.

- **Reusable code** Whenever possible, we created the source code to be generic and reusable. This should allow you to take individual functions or entire C++ classes and drop them into your own applications with little or no modification. See Appendix B for a brief discussion of some of the classes found in this book.
- **The SuperSCP utility** This utility allows you to explore all the services installed on a local or remote machine. Using this utility, you can also change the configuration of these services, control them, and monitor their execution. In essence, this utility allows you to manipulate a service in every conceivable way allowed by the operating system.
- **The TokenMaster utility** Using this security utility, you can discover and manipulate the user context of processes running on your system. Doing this is very useful for learning the intricacies of security in Windows and for testing security on a system. Having control over the user context can be very helpful to an administrator who is testing different security features of the operating system with the goal of tightening the security on his system.
- **The AccessMaster utility** You can use this utility to modify the access rights on nearly every securable object in the system. Windows ships with editors for file security and registry security, and also with an editor for security on Active Directory. However, AccessMaster allows you to interactively modify security of these objects as well as named pipes, window stations and desktops, synchronization objects, process and threads, and many other objects. This utility can be very useful in learning security in Windows and is a very practical tool.
- **The TrusteeMan utility** This utility allows you to fully administer local user and group trustee accounts on a system, as well as assign and revoke privileges for these accounts.
- **The MsgTableDump utility** This utility allows you to view the message resources in EXE or DLL files, including the system messages found in Kernel32.dll.
- **The Windows 2000 Platform SDK (which includes the WMI SDK)** A complete *x*86 version of the Platform SDK for Windows 2000 is available on the companion CD.

- **The Performance Counter class** This is a C++ class that makes it extremely easy to expose performance counters.
- **Specifications** The Windows 2000 distributed application specification and the Microsoft BackOffice logo specification are included on the companion CD.
- **Windows Installer** Oh yeah, before we forget, the sample applications on the companion CD take advantage of the new Windows Installer built into Windows 2000. The Windows Installer gives you fine control over the parts you want to install and also allows you to easily uninstall the book's sample applications and executable files using the Add/Remove Programs Control Panel applet. Of course, you can always just access the source files and executable files directly from the companion CD if you prefer.

This Book Has No Mistakes

This section's title clearly states what we want to say. But, of course, we all know that it is a flat-out lie. My editors and I have worked hard to bring you the most accurate, up-to-date, in-depth, easy-to-read, painless-to-understand, bug-free information. Even with the fantastic team assembled, we all know that things slip through the cracks. If you find any mistakes in this book (especially bugs), we would greatly appreciate it if you would send the mistakes to Jeff via his Web site, *http://www.JeffreyRichter.com*, or to Jason via e-mail at *JClark@Microsoft.com*.

The CD-ROM and System Requirements

The companion CD contains the source code and executable files for all the sample applications presented in the book. All sample applications were written and compiled with Microsoft Visual C++ 6.0 and the Windows 2000 Platform SDK. Most of the sample applications require features that exist only in Windows 2000; no attempt has been made to build or test the applications on any other version of Windows.

In the root directory of the companion CD you will find the Microsoft Visual Studio workspace file ("Programming Server-Side Apps.dsw") and the common header file ("CmnHdr.h"). Under the root directory is a separate directory for each sample application. The *x86* directory contains the debug versions of all the sample applications so that you can run them directly from the companion CD.

When you insert the companion CD into the drive, the welcome screen will present itself automatically. If the screen does not appear, go to the drive's Setup directory and execute the StartCD.exe application.

Support

Microsoft Press provides corrections for this book at the following address:

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If you have comments, questions, or ideas regarding this book, please send them to Microsoft Press using postal mail or e-mail:

Microsoft Press
Attn: *Programming Server-Side Applications for Microsoft Windows 2000* editor
One Microsoft Way
Redmond, WA 98052-6399
mspinput@microsoft.com

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