

Microsoft

William R. Stanek

*Award-winning author and Windows administration expert*

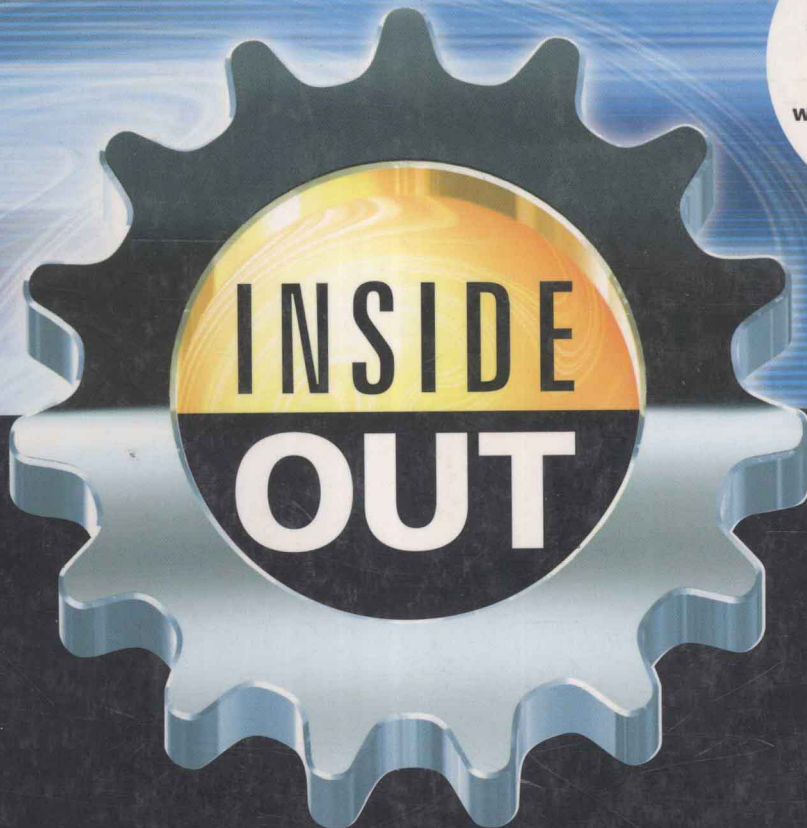


精通

Microsoft

Windows Server™ 2003

Get information  
on Service Pack 1,  
64-bit editions, and  
Windows Update  
Services at:  
[www.microsoft.com/  
mspress/updates](http://www.microsoft.com/mspress/updates)



- Hundreds of system administration solutions—easy to find, easy to use
- Get tips, tricks, and workarounds, plus the straight scoop
- Work smarter—and take your Windows Server experience to the next level

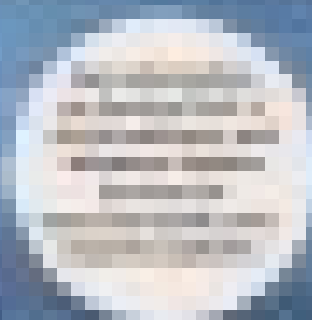
China Edition

Published by Shanghai World Publishing Corporation

世界图书出版公司

精通

## Windows Server 2003



本书是 Windows Server 2003 系列图书中的一本，主要介绍 Windows Server 2003 的安装、配置、管理、维护、故障排除等方面的知识。本书共分 10 章，第 1 章介绍 Windows Server 2003 的概述，第 2 章介绍 Windows Server 2003 的安装，第 3 章介绍 Windows Server 2003 的配置，第 4 章介绍 Windows Server 2003 的管理，第 5 章介绍 Windows Server 2003 的维护，第 6 章介绍 Windows Server 2003 的故障排除，第 7 章介绍 Windows Server 2003 的备份与恢复，第 8 章介绍 Windows Server 2003 的灾难恢复，第 9 章介绍 Windows Server 2003 的组策略，第 10 章介绍 Windows Server 2003 的远程访问。

**Microsoft®**

# **Microsoft® Windows Server™ 2003 Inside Out**

**William R. Stanek**

## 图书在版编目(CIP)数据

精通 Microsoft Windows Server 2003:英文/(美)斯坦内克著.  
—上海:上海世界图书出版公司,2007.6  
ISBN 978-7-5062-8324-3

I. 精… II. 斯… III. 服务器-操作系统(软件), Windows Server 2003-英文  
IV. TP316.86

中国版本图书馆 CIP 数据核字(2007)第 082299 号

© 2007 by Microsoft Corporation. All rights reserved.

Original English language edition © 2004 by William Stanek. All rights reserved.  
Published by arrangement with the original publisher, Microsoft Corporation, Redmond,  
Washington, U. S. A.

## 精通 Microsoft Windows Server 2003

[美]威廉·斯坦内克 著

---

上海世界图书出版公司 重印发行

上海市尚文路 185 号 B 楼

邮政编码 200010

(公司电话:021-63783016 转发行部)

上海出版印刷有限公司印刷

如发现印装质量问题,请与印刷厂联系

(质检科电话:021-56723497)

各地新华书店经销

---

开本:787×1092 1/16 印张:93 字数:2 790 000

2007 年 6 月第 1 版 2007 年 6 月第 1 次印刷

ISBN 978-7-5062-8324-3/T·149

图字:09-2007-443 号

定价:280.00 元

<http://www.wpcsh.com>

# Acknowledgments

No single project has ever been as challenging or as fun for me as writing *Microsoft Windows Server 2003 Inside Out*. Why? When I set out to write this book, I had no idea it would take me more than 1,500 pages to detail every quirk, every insider secret, and every sticky detail that I've learned about Windows Server 2003 since I started working with it in late 1999—back when Windows Server 2003 was known as Windows Whistler. Yet there it is all the same, and it is my sincere hope that the book you hold in your hands is the best of its class when it comes to managing a Windows Server 2003 implementation and handling everyday administration. I also hope the result of all the hard work is that *Microsoft Windows Server 2003 Inside Out* is something unique. It takes into account all the experiences I've had while consulting, conducting training courses, and writing books about Windows Server 2003. As this is my 21st Windows-related book and I've helped millions of people learn Windows over my 20+-year career, I hope that counts for an awful lot. But no man is an island and this book couldn't have been written without help from some very special people.

Without the support of my wife and children, this book would not have been possible. As I literally was writing every day since I signed on to this project—holidays included—my wife had to manage everything else and the little ones had a lot more responsibilities around the house. Thank you for your support and your extraordinary ability to put up with the clackety-clackety of my keyboard.

As I've stated in *Microsoft Windows Server 2003 Administrator's Pocket Consultant* and in *Microsoft Windows Command-Line Administrator's Pocket Consultant*, the team at Microsoft Press is top-notch. Kristine Haugseth was instrumental throughout the writing process. She helped me stay on track and coordinated the materials after I submitted chapters. Martin DelRe was the acquisitions editor for the project. He believed in the book and my unique approach and was really great to work with. Completing and publishing the book wouldn't have been possible without their help! Susan McClung headed up the editorial process for nSight, Inc. As the project manager for this and many other books I've written, she wears many hats and always helps out in many ways. Thank you! I'd also like to add that Kristine, Martin, and Susan were very understanding—writing a book of this length is very fun but also very exhausting.

Unfortunately for the writer (but fortunately for readers), writing is only one part of the publishing process. Next came editing and author review. I must say, Microsoft Press has the most thorough editorial and technical review process I've seen anywhere—and I've written a lot of books for many different publishers. Mitch Tulloch was the technical editor for the book. I believe this was the first time we worked together and it turned out to be a wonderful experience. He was very thorough and helped out every step of the way to ensure things worked as expected.

## Acknowledgments

As ever I would also like to thank Michael Bolinger, Anne Hamilton, and Juliana Aldous Atkinson. They've helped out at many points of my writing career and been there when I needed them the most. Thank you also for shepherding my many projects through the publishing process!

Thanks also to Studio B literary agency and my agents, David Rogelberg and Neil Salkind. David and Neil are great to work with. Finally, I want to thank David Stanley. David, I hope we get to work together in the future!

Hopefully, I haven't forgotten anyone but if I have, it was an oversight. *Honest.* ;-)

# We'd Like to Hear from You!

Our goal at Microsoft Press is to create books that help you find the information you need to get the most out of your software.

The INSIDE OUT series was created with you in mind. As part of our ongoing effort to ensure that we're creating the books that meet your learning needs, we'd like to hear from you. Let us know what you think. Tell us what you like about this book and what we can do to make it better. When you write, please include the title and author of this books in your e-mail, as well as your name and contact information. We look forward to hearing from you!

## How to Reach Us

E-mail:     nsideout@microsoft.com  
Mail:        Inside Out Series Editor  
              Microsoft Press  
              One Microsoft Way  
              Redmond, WA 98052

*Note: Unfortunately, we can't provide support for any software problems you might experience. Please go to <http://support.microsoft.com> for help with any software issues.*

# About the CD

The companion CD that ships with this book contains many tools and resources to help you get the most out of your *Inside Out* book.

## What's on the CD

Your *Inside Out* CD includes the following:

- **eBook** In this section you'll find the electronic version of *Microsoft Windows Server 2003 Inside Out*.
- **Resource Kit Tools** This section contains resource kit tools for Windows Server 2003.
- **Miscellaneous Tools** This section contains several tools used to manage Windows Server 2003, including Application Compatibility Analyzer, Microsoft Baseline Security Analyzer, and Windows System Resource Manager.
- **IIS Tools** A variety of tools and other resources for migrating and enhancing Microsoft Internet Information Services (IIS) 6 form this section.
- **FRS Tools** The tools in this section are used to manage File Replication Service. They include continuous monitoring tools and snapshot troubleshooting tools.
- **MOM Tools** This section contains a variety of tools relating to Microsoft Operations Manager.
- **MSA v2.0 Doc Set** The documentation in this section comprises enterprise-class architectural blueprints and implementation guidance associated with Microsoft Systems Architecture version 2.
- **Windows Server Documentation** This section contains technical documents and white papers about implementing and administering Windows Server 2003.

The companion CD provides detailed information about the files on the CD and links to Microsoft and third-party sites on the Internet.

**Note** The links to third-party sites are not under the control of Microsoft Corporation, and Microsoft is therefore not responsible for their content, nor should their inclusion on this CD be construed as an endorsement of the product or the site.

Software provided on this CD is only in the English language and may be incompatible with non-English-language operating systems and software.



## Using the CD

To use this companion CD, insert it into your CD-ROM drive. Accept the license agreement that is presented to access the Start menu. If AutoRun is not enabled on your system, run StartCD.exe in the root of the CD or refer to the Readme.txt file. The menu provides you with links to all the resources available on the CD and also to the Microsoft Learning Support Web site.

**Caution** The electronic version of the book and some of the other documentation included on this CD is provided in Portable Document Format (PDF). To view these files, you will need Adobe Acrobat or Acrobat Reader. For more information about these products or to download the Acrobat Reader, visit the Adobe Web site at <http://www.adobe.com>.

## Support Information

Every effort has been made to ensure the accuracy of the book and the contents of this companion CD. For feedback on the book content or this companion CD, please contact us by using any of the addresses listed in the “We’d Like to Hear from You” section.

Microsoft Press provides corrections for books through the World Wide Web at <http://www.microsoft.com/learning/support/>. To connect directly to the Microsoft Press Knowledge Base and enter a query regarding a question or issue that you may have, go to <http://www.microsoft.com/learning/support/search.asp>.

For support information regarding Windows Server 2003, you can connect to Microsoft Technical Support on the Web at <http://support.microsoft.com/>.

# Conventions and Features Used in this Book

This book uses special text and design conventions to make it easier for you to find the information you need.

## Text Conventions

Convention	Meaning
Abbreviated menu commands	For your convenience, this book uses abbreviated menu commands. For example, “Click Tools, Track Changes, Highlight Changes” means that you should click the Tools menu, point to Track Changes, and click the Highlight Changes command.
<b>Boldface type</b>	<b>Boldface</b> type is used to indicate text that you enter or type.
Initial Capital Letters	The first letters of the names of menus, dialog boxes, dialog box elements, and commands are capitalized. Example: the Save As dialog box.
<i>Italicized type</i>	<i>Italicized</i> type is used to indicate new terms.
Plus sign (+) in text	Keyboard shortcuts are indicated by a plus sign (+) separating two key names. For example, Ctrl+Alt+Delete means that you press the Ctrl, Alt, and Delete keys at the same time.

## Design Conventions



This icon identifies a new or significantly updated feature in this version of the software.



### Inside Out

**This statement illustrates an example of an “Inside Out” problem statement**

These are the book’s signature tips. In these tips, you’ll get the straight scoop on what’s going on with the software—inside information about why a feature works the way it does. You’ll also find handy workarounds to deal with software problems.

**Tip** Tips provide helpful hints, timesaving tricks, or alternative procedures related to the task being discussed.



## Troubleshooting

**This statement illustrates an example of a “Troubleshooting” problem statement**

Look for these sidebars to find solutions to common problems you might encounter. Troubleshooting sidebars appear next to related information in the chapters. You can also use the Troubleshooting Topics index at the back of the book to look up problems by topic.

**Cross-references** point you to other locations in the book that offer additional information about the topic being discussed.



This icon indicates information or text found on the companion CD.

**Caution** Cautions identify potential problems that you should look out for when you're completing a task or problems that you must address before you can complete a task.

**Note** Notes offer additional information related to the task being discussed.

## Sidebars

The sidebars sprinkled throughout these chapters provide ancillary information on the topic being discussed. Go to sidebars to learn more about the technology or a feature.

# Contents At A Glance

## Part 1

### **Windows Server 2003 Overview and Planning**

#### Chapter 1

**Introducing Windows  
Server 2003 . . . . . 3**

#### Chapter 2

**Planning for Windows  
Server 2003 . . . . . 31**

## Part 2

### **Windows Server 2003 Installation**

#### Chapter 3

**Preparing for the Installation  
and Getting Started. . . . . 71**

#### Chapter 4

**Managing Interactive  
Installations . . . . . 93**

#### Chapter 5

**Managing Unattended  
Installations . . . . . 117**

#### Chapter 6

**Using Remote Installation  
Services . . . . . 153**

## Part 3

### **Windows Server 2003 Upgrades and Migrations**

#### Chapter 7

**Preparing for Upgrades  
and Migration . . . . . 213**

#### Chapter 8

**Upgrading to Windows  
Server 2003 . . . . . 229**

#### Chapter 9

**Migrating to Windows  
Server 2003. . . . . 251**

## Part 4

### **Managing Windows Server 2003 Systems**

#### Chapter 10

**Configuring Windows  
Server 2003. . . . . 285**

#### Chapter 11

**Windows Server 2003  
MMC Administration. . . . . 305**

#### Chapter 12

**Managing Windows  
Server 2003. . . . . 341**

#### Chapter 13

**Managing and Troubleshooting  
Hardware . . . . . 377**

#### Chapter 14

**Managing the Registry . . . . . 409**

#### Chapter 15

**Performance Monitoring  
and Tuning. . . . . 449**

#### Chapter 16

**Comprehensive Performance  
Analysis and Logging . . . . . 485**

## Part 5

### **Managing Windows Server 2003 Storage and File Systems**

#### Chapter 17

**Planning for High Availability. . . . 523**

## Contents At A Glance

Chapter 18	
<b>Preparing and Deploying Server Clusters . . . . .</b>	<b>537</b>
Chapter 19	
<b>Storage Management . . . . .</b>	<b>587</b>
Chapter 20	
<b>Managing Windows Server 2003 File Systems . . . . .</b>	<b>643</b>
Chapter 21	
<b>File Sharing and Security . . . . .</b>	<b>691</b>
Chapter 22	
<b>Using Volume Shadow Copy . . . . .</b>	<b>727</b>
Chapter 23	
<b>Using Removable Media. . . . .</b>	<b>749</b>
Part 6	
<b>Managing Windows Server 2003 Networking and Print Services</b>	
Chapter 24	
<b>Managing TCP/IP Networking . . . . .</b>	<b>773</b>
Chapter 25	
<b>Managing DHCP . . . . .</b>	<b>807</b>
Chapter 26	
<b>Architecting DNS Infrastructure . . . . .</b>	<b>851</b>
Chapter 27	
<b>Implementing and Managing DNS . . . . .</b>	<b>873</b>
Chapter 28	
<b>Implementing and Maintaining WINS . . . . .</b>	<b>927</b>
Chapter 29	
<b>Installing and Maintaining Print Services . . . . .</b>	<b>945</b>
Chapter 30	
<b>Using Remote Desktop for Administration. . . . .</b>	<b>1019</b>

Chapter 31	
<b>Deploying Terminal Services . . . . .</b>	<b>1035</b>
Part 7	
<b>Managing Active Directory and Security</b>	
Chapter 32	
<b>Active Directory Architecture . . . . .</b>	<b>1085</b>
Chapter 33	
<b>Designing and Managing the Domain Environment. . . . .</b>	<b>1105</b>
Chapter 34	
<b>Organizing Active Directory. . . . .</b>	<b>1149</b>
Chapter 35	
<b>Configuring Active Directory Sites and Replication . . . . .</b>	<b>1167</b>
Chapter 36	
<b>Implementing Active Directory . . . . .</b>	<b>1197</b>
Chapter 37	
<b>Managing Users, Groups, and Computers. . . . .</b>	<b>1227</b>
Chapter 38	
<b>Managing Group Policy. . . . .</b>	<b>1281</b>
Chapter 39	
<b>Active Directory Site Administration . . . . .</b>	<b>1327</b>
Part 8	
<b>Windows Server 2003 Disaster Planning and Recovery</b>	
Chapter 40	
<b>Disaster Planning . . . . .</b>	<b>1349</b>
Chapter 41	
<b>Backup and Recovery. . . . .</b>	<b>1365</b>

# Table of Contents

<b>Acknowledgments</b> .....	<b>xxxi</b>
<b>We'd Like to Hear from You</b> .....	<b>xxxiii</b>
<b>About the CD</b> .....	<b>xxxv</b>
<b>Conventions and Features Used in This Book</b> .....	<b>xxxvii</b>

## Part 1

## **Windows Server 2003 Overview and Planning**

### Chapter 1

### **Introducing Windows Server 2003 3**

What's New in Windows Server 2003 .....	4
Windows Server 2003, Standard Edition .....	6
Windows Server 2003, Enterprise Edition .....	6
Windows Server 2003, Datacenter Edition .....	7
Windows Server 2003, Web Edition .....	7
64-Bit Computing .....	8
.NET Technologies .....	9
.NET Framework Technologies .....	10
.NET Framework Layers .....	10
Windows XP and Windows Server 2003 .....	11
Windows XP Editions .....	11
Windows XP and Active Directory .....	11
Installing Windows Server 2003 Administration Tools on Windows XP .....	12
Increased Support for Standards .....	12
IPv6 Support .....	12
IETF Security Standards Support .....	13
XML Web Services Support .....	13
Interface and Tool Improvements .....	13
Simple and Classic Start Menus .....	13
Improvements for Active Directory Tools .....	14
Other Tool Improvements .....	15
Active Directory Improvements .....	15
Domains Can Be Renamed .....	16
Active Directory Can Replicate Selectively .....	16
Active Directory–Integrated DNS Zones Can Forward Conditionally ...	17
Active Directory Schema Objects Can Be Deleted .....	18
Active Directory and Global Catalog Are Optimized .....	18
Active Directory Can Compress and Route Selectively .....	19
Forest-to-Forest Trusts .....	20
Active Directory Migration Made Easier .....	21

## Table of Contents

Group Policy Improvements . . . . .	21
Group Policy Management Console . . . . .	21
Software Restriction Policies in Group Policy . . . . .	22
Policy Changes for User Profiles . . . . .	22
Management and Administration Extras . . . . .	22
Remote Administration Gets a Face-Lift . . . . .	23
Enhanced File Management by Using DFS . . . . .	23
Improved Storage and File System Options . . . . .	24
Changes for Terminal Services . . . . .	25
Printer Queue Redundancy . . . . .	26
Remote Installation Services . . . . .	26
Headless Servers and Out-of-Band Management . . . . .	26
Security Advances . . . . .	27
Windows Server 2003 Feature Lock Down . . . . .	27
IPSec and Wireless Security . . . . .	28
Microsoft .NET Passport Support . . . . .	29
Reliability and Maintenance Enhancements . . . . .	29
Automatic System Recovery . . . . .	29
Automatic Updates . . . . .	29
Improved Verification and System Protection . . . . .	30

## Chapter 2

# Planning for Windows Server 2003

**31**

Overview of Planning . . . . .	31
The Microsoft Solutions Framework Process Model . . . . .	32
Your Plan: The Big Picture . . . . .	32
Identifying Your Organizational Teams . . . . .	34
Microsoft Solutions Framework Team Model . . . . .	34
Your Project Team . . . . .	35
Assessing Project Goals . . . . .	36
The Business Perspective . . . . .	37
Identifying IT Goals . . . . .	37
Examining IT–Business Interaction . . . . .	38
Predicting Network Change . . . . .	39
Analyzing the Existing Network . . . . .	39
Evaluating the Network Infrastructure . . . . .	40
Assessing Systems . . . . .	41
Identify Network Services and Applications . . . . .	42
Identifying Security Infrastructure . . . . .	43
Reviewing Network Administration . . . . .	44
Defining Objectives and Scope . . . . .	46
Specifying Organizational Objectives . . . . .	47
Setting the Schedule . . . . .	48
Shaping the Budget . . . . .	49

## Table of Contents

Allowing for Contingencies .....	49
Finalizing Project Scope .....	50
Defining the New Network Environment .....	51
Defining Domain and Security Architecture .....	51
Changing the Administrative Approach .....	53
Thinking about Active Directory .....	55
Planning for Server Usage .....	59
Determining Which Windows Edition to Use .....	62
Selecting a Software Licensing Program .....	64
Retail Product Licenses .....	65
Volume-Licensing Programs .....	65
Final Considerations for Planning and Deployment .....	67

### Part 2

## Windows Server 2003 Installation

### Chapter 3

## Preparing for the Installation and Getting Started 71

Getting a Quick Start .....	72
New Features and Enhancements .....	72
Setup Methods .....	73
Setup Programs .....	74
Tools for Automating Setup .....	81
Product Licensing .....	82
Preparing for Windows Server 2003 Installation .....	83
System Hardware Requirements .....	83
How a Clean Installation and an Upgrade Differ .....	84
Supported Upgrade Paths .....	85
Using Dynamic Update .....	86
Selecting a Distribution Method .....	88
Getting Ready for Automated Installations .....	89
Preinstallation Tasks .....	90

### Chapter 4

## Managing Interactive Installations 93

Windows Installation Considerations .....	93
Installation on x86-Based Systems .....	93
Installation on 64-Bit Systems .....	94
Checking System Compatibility .....	96
Planning Partitions .....	96
Naming Computers .....	97
Network and Domain Membership Options .....	98
Performing an Interactive Installation .....	100
Installation Sequence .....	101
Activation Sequence .....	104



## Table of Contents

Troubleshooting Installation .....	106
Start with the Potential Points of Failure .....	106
Continue Past Lockups and Freezes .....	108
Configuring Server Roles .....	112
Installing Additional Components Manually .....	113
Postinstallation .....	114
 Chapter 5	
<b>Managing Unattended Installations</b> .....	<b>117</b>
Automating Setup .....	118
Determining the Method of Automation .....	118
Establishing the Distribution Folders .....	120
Types of Answer Files .....	122
Managing Unattended Installations .....	137
Customizing the Distribution Folder .....	137
Using CD Media for Automated Installations .....	146
Using an Answer File .....	147
Starting the Unattended Installation .....	148
 Chapter 6	
<b>Using Remote Installation Services</b> .....	<b>153</b>
Introduction to RIS .....	153
Services and Protocols Used by RIS .....	154
Limitations of RIS .....	155
Operating Systems Installable by Using RIS .....	156
Designing the RIS Environment .....	156
Building a RIS Server: What's Involved .....	158
Installing RIS .....	158
RIS Server Requirements .....	158
Performing the Install .....	159
Configuring the RIS Server .....	160
Controlling Access to RIS Servers .....	170
Configuring RIS Clients .....	175
Customizing Installation Options .....	176
Creating a RIBF Disk .....	177
Prestaging Clients in Active Directory .....	178
Preparing RIS-Based Installations .....	181
Using RIS Images .....	181
Restricting Access to RIS Images .....	182
OS Images Created by Using RISetup .....	182
Installed (File-System-Based) Image by RIPrep .....	184
Adding "Flat" or "CD-ROM" Images to RIS .....	190
RIS Answer Files .....	194
Associating an Answer File with a RIS Image .....	198
Configuring the CIW .....	198