

Inside Windows NTTM

George Eckel

Forrest Houlette

John Stoddard

Richard Wagner

Windows NT 内幕

清华大学出版社

Prentice-Hall

HALL PRENTICE
PRENTICE HALL PRENTICE
HALL PRENTICE HALL P
PRENTICE HALL PRENTICE
HALL PRENTICE HALL P
HALL PRENTICE

11. 7/6
1. 1/1

Inside Windows NT™

Windows NT 内幕

George Eckel
Forrest Houlette
John Stoddard
Richard Wagner

清 华 大 学 出 版 社
Prentice-Hall International Inc.

(京)新登字 158 号

内 容 提 要

Windows NT 是一种新操作系统,支持 DOS、Windows、OS/2 和 POSIX 兼容的应用程序,支持分布式计算环境,是下一代操作系统的基础。本书与许多介绍 Windows NT 的书不同之处在于,充分考虑 Windows 熟练用户的条件和需要,从实际工作出发研究操作系统,因而堪称是 Windows NT 的权威性参考,从 Windows 3.1 向 Windows NT 转移的完备指南。

本书共分五部分: I. 介绍从其他操作系统如 DOS 或 OS/2 转换到 Windows NT 的基本概念,讨论从 Windows NT 的整体设计到安装与设置的一切问题; II. 介绍 Windows NT 界面,桌面系统及其配置与裁剪,Applets 程序的运用,打印及管理文体; III. 介绍 Windows NT 为来自 OS/2、DOS 及 UNIX 系统的“外来”应用程序所提供的无与伦比的灵活性,读者将从微软公司解决现有应用程序进出 Windows NT 所采用的方法中受到莫大的启发; IV. 讲解 Windows NT 实现同级组网的方法,包括:组网途径、“系统登录”工作原理、Windows NT 高级服务器; V. 附录,提供 Windows 可采用的各种不同应用程序的样本。

本书适用于命令行操作系统,以及意欲升级到 NT 的 Windows 的熟练用户。

©清华大学出版社/Prentice Hall Inc. 1994

版权所有。

本书任何部分之文字,未经出版者书面同意,

不得用任何方式抄袭、节录及翻印。

Original edition published by New

Riders Publishing. Copyright ©

1993. This reprint jointly published by

Tsinghua University Press/Prentice

Hall. This edition is authorized for

sale in mainland China only.

中国(大陆)版

Inside Windows NT™

Windows NT 内幕

George Eckel et al

清华大学出版社

Prentice-Hall Inc.

出版

北京 清华园

清华大学印刷厂印刷

新华书店总店科技发行所发行

开本:787×1092 1/16 印张:39

1994 年 8 月第 1 版 1994 年 8 月第 1 次印刷

印数:0001—1000

ISBN 7-302-01604-6/TP·676

定价:81.00 元

Contents at a Glance

Introduction	1
Part One: Migrating to Windows NT: Concepts and Installation	17
1 <i>Exploring the Road to Windows NT</i>	19
2 <i>Revealing the Windows NT Operating System</i>	37
3 <i>Migrating from Windows 3.1</i>	89
4 <i>Installing Windows NT</i>	107
Part Two: Managing the Windows NT Desktop	129
5 <i>Learning the Windows NT Interface</i>	131
6 <i>Mastering the Windows NT Desktop</i>	209
7 <i>Configuring and Customizing the Windows NT Desktop</i>	237
8 <i>Using Windows NT Applets</i>	279
9 <i>Printing and Managing Fonts</i>	313
Part Three: Creating Solutions through Integration	351
10 <i>Running DOS, OS/2, and POSIX Applications</i>	353
11 <i>Exchanging Data between Windows Applications</i>	389
12 <i>Using Object Linking and Embedding</i>	423
Part Four: Managing the Windows NT Network	447
13 <i>Exploring Networking with Windows NT</i>	449
14 <i>Understanding the System Registry</i>	461
15 <i>Exploring the Windows NT Advanced Server</i>	477
Part Five: Appendix	491
<i>Windows NT Product Directory</i>	493
Index	589

Contents

Introduction	1
<i>How This Book Is Different from Most Windows NT Books</i>	3
<i>Who Should Read This Book?</i>	4
<i>Experienced MS-DOS, OS/2, and UNIX Users</i>	
<i>Who Are New to Windows NT</i>	4
<i>Experienced Windows Users Moving to Windows NT</i>	6
<i>How This Book Is Organized</i>	8
<i>Part One: Migrating to Windows NT:</i>	
<i>Concepts and Installation</i>	8
<i>Part Two: Managing the Windows NT Desktop</i>	9
<i>Part Three: Creating Solutions through Integration</i>	9
<i>Part Four: Managing the Windows NT Network</i>	10
<i>Part Five: Windows NT Product Directory</i>	10
<i>Conventions Used in This Book</i>	11
<i>Special Text Used in This Book</i>	12
<i>Notes, Tips, and Warnings</i>	12
<i>Another Windows NT Title from New Riders Publishing</i>	13
<i>Further Reading</i>	13
<i>New Riders Publishing</i>	14
 Part One: Migrating to Windows NT:	
Concepts and Installation	17
1 Exploring the Road to Windows NT	19
<i>Understanding OS/2's Lack of Success</i>	20
<i>Developing Windows NT with David Cutler</i>	21
<i>Determining Primary Marketing Requirements</i>	22
<i>Understanding Software Design Goals</i>	25
<i>Reviewing the Evolution of Windows NT</i>	33
<i>Summary</i>	35
2 Revealing the Windows NT Operating System	37
<i>Understanding Windows NT's 32-Bit Architecture</i>	38
<i>32-Bit Addressing</i>	38
<i>32-Bit Processing</i>	42

Understanding Multitasking	43
Tasks	43
Memory Management	44
Timeslice	47
Understanding Multithreading	49
Understanding Multiprocessing	51
Asymmetric Multiprocessing	51
Symmetric Multiprocessing	52
Understanding Windows NT Subsystems	53
Understanding Windows NT Networking	56
Understanding System Security	57
Crash Prevention	58
Logon and Access Security	59
User Privileges	62
Access Control Lists	63
Understanding How Windows NT Works with	
Your Existing Applications	65
DOS and 16-Bit Windows Compatibility	65
OS/2 Compatibility	67
POSIX Compatibility	67
Comparing Windows NT with Other	
32-Bit Operating Systems	68
Windows NT and OS/2: A Comparison	68
Windows NT and UNIX: A Comparison	79
Process Execution	80
Multiprocessing	81
Objects	81
Flat Memory	82
Modes	82
Security	83
Networking	83
Cross-Platform Compatibility	84
Multiusing	84
Parallel Processing	84
Distributed File Systems	84
Applications	85
Variants	85
Size	85
Market Penetration	85
Summary	87

3	Migrating from Windows 3.1	89
	<i>Booting Windows NT</i>	90
	<i>Quitting Windows NT</i>	92
	<i>Surveying New Windows NT Applets</i>	93
	<i>Using Control Panel's New Features</i>	94
	<i>Control Panel Features for the</i>	
	<i>System Administrator</i>	95
	<i>Revised Control Panel Features</i>	99
	<i>Using Print Manager's New Features</i>	103
	<i>Summary</i>	104
4	Installing Windows NT	107
	<i>Understanding Hardware Requirements</i>	108
	<i>Preparing To Install Windows NT</i>	110
	<i>Understanding Setup</i>	111
	<i>Installing Windows NT from a</i>	
	<i>CD-ROM or Floppy Disks</i>	111
	<i>Installing Windows NT over a Network</i>	118
	<i>Installing Windows NT by Using</i>	
	<i>Computer Profile Setup</i>	119
	<i>Installing Windows NT on a RISC-Based Computer</i>	120
	<i>Configuring the Operating Systems</i>	121
	<i>Configuring the Windows NT Environment</i>	121
	<i>Configuring the Windows 3.1 Environment</i>	122
	<i>Configuring the DOS Environment</i>	123
	<i>PIF Files</i>	124
	<i>Configuring the OS/2 Environment</i>	125
	<i>Solving Installation Problems</i>	126
	<i>Solving SCSI Problems</i>	126
	<i>Solving Boot Problems</i>	127
	<i>Solving Networking Problems</i>	128
	<i>Summary</i>	128
	Part Two: Managing the Windows NT Desktop	129
5	Learning the Windows NT Interface	131
	<i>Examining the Windows NT Desktop</i>	133
	<i>Using the Mouse</i>	134
	<i>Clicking with the Mouse</i>	135
	<i>Double-Clicking with the Mouse</i>	137

Dragging an Object	138
Dragging and Dropping	140
Using the Mouse Pointer	142
Working with Windows and Icons	145
Basic Window Elements	147
Menus	157
Dialog Boxes	168
Icons	176
Performing Common Windows Tasks	178
Basic File Operations	179
Windows Printing	186
Workspace Searches	189
Views of Your Workspace	190
Option Selection	191
Font Selection	192
Toolbars	195
Palettes	197
On-Line Help	199
Introducing WYSIWYG	202
Managing the Multiple Document Interface	203
Summary	207
6 Mastering the Windows NT Desktop	209
Getting To Know the Desktop	210
Parts of the Desktop	211
Program Manager	214
Application Groups	214
Introducing the Application Groups	216
The Main Group	217
The Accessories Group	219
Administrative Tools	220
Games	222
The StartUp Group	222
The Applications Group	223
Working in Program Manager	223
Moving an Icon	224
Rearranging Icons	224
Adding an Icon	224
Creating a New Group	227
Modifying an Application Group	228
Deleting an Application Group	229

Working on the Windows NT Desktop	230
Running Applications	230
Exiting Applications	231
Running Multiple Applications	233
Summary	235
7 Configuring and Customizing the	
Windows NT Desktop	237
Introducing the Windows NT Control Panel	238
Changing Colors by Using the Color Icon	241
Controlling Fonts	245
Controlling Ports	247
Setting Baud Rate	247
Setting Data Bits, Stop Bits, and Parity	248
Setting Flow Control	249
Controlling the Mouse	250
Controlling the Desktop	251
Using a Screen Saver	252
Using Wallpaper	253
Controlling Icon Spacing and Window Placement	254
Controlling Printers by Using the Printers Icon and	
Print Manager	256
Controlling System Options	259
Setting Environment Variables	260
Controlling Virtual Memory	261
Controlling Multitasking	262
Controlling Other Settings with the Control Panel	263
Using the International Icon	263
Using the Keyboard Icon	264
Using the Date/Time Icon	265
Using the Cursors Icon	265
Using the Sound Icon	266
Working with the Program Manager	267
Working with Program Groups and Program Items	268
Associating Document Files with Applications	272
Replacing Program Manager as the Windows NT Shell	273
Customizing the File Manager	274
Other Settings in the Options Menu	274
Controlling File Display Information	276
Summary	277

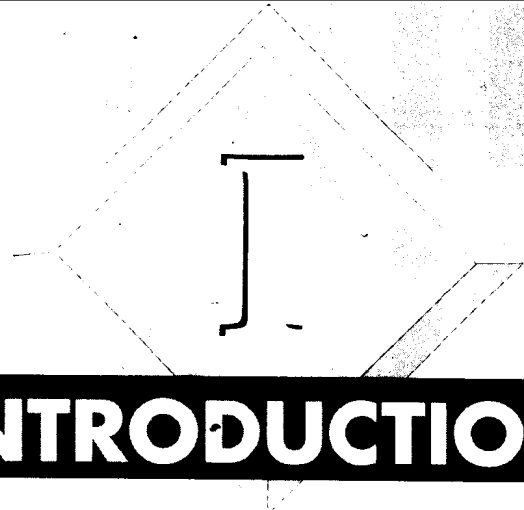
8 Using Windows NT Applets	279
<i>Surveying Single-User Applets</i>	280
<i>Exploring Multiuser Applets</i>	283
ClipBook Viewer	283
Mail	291
Chat	297
Schedule+	299
Using Administrator Tools	305
Disk Administrator	305
User Manager	306
Performance Monitor	309
Event Viewer	309
Backup	310
Summary	311
9 Printing and Managing Fonts	313
Introducing Fonts in Windows NT	314
Using TrueType Fonts	316
How Windows NT Handles TrueType Fonts	319
TrueType Font Embedding	321
Windows NT Font Mapping	323
Comparing TrueType with PostScript	324
Working with Fonts	327
Installing Fonts	327
Removing Fonts	329
Setting TrueType Options	330
Understanding Bit-Map Fonts	330
Understanding System Fonts	331
Understanding DOS Session Fonts	332
Using the Windows NT Print Manager	
To Configure Printers	333
Installing and Configuring Printers	333
Setting a Default Printer	341
Removing a Printer	341
Setting Up a Printer	341
Setting Printer Security	344
Owning a Printer	344
Connecting to Remote Network Printers	345
Managing Print Jobs with the Print Manager	345
Changing the Print-Queue Order	346

Deleting a Print Job	347
Setting Document Details	347
Troubleshooting TrueType Printing	348
Summary	348
Part Three: Creating Solutions through Integration	351
10 Running DOS, OS/2, and POSIX Applications	353
Setting Up a Non-Windows NT Application	355
Using Setup To Set Up an Application under Windows NT	357
Using Program Manager To Set Up an Application under Windows NT	359
Setting Up Memory-Resident Programs under Windows NT ...	360
Understanding Program Information Files for DOS Applications	363
Starting the PIF Editor	364
Editing a Standard Windows PIF	365
Using Multiple PIFs for the Same Application	367
Examining PIF Options for Standard Mode	369
Examining PIF Options for 386-Enhanced Mode	373
Operating DOS, OS/2, and POSIX Applications	380
Starting DOS, OS/2, and POSIX Applications	380
Switching among DOS, OS/2, and POSIX Applications	382
Pasting Data among Non-Windows Applications	386
Summary	388
11 Exchanging Data between Windows Applications	389
Examining Traditional Cutting-and-Pasting	390
Examining Linking and Embedding	394
Dynamic Data Exchange (DDE)	395
Object Linking and Embedding (OLE)	397
DDE and OLE Terminology	398
Applications that Support DDE	400
Applications That Support OLE	403
Understanding Interactive Dynamic Data Exchange	406
Switching between Applications	411
Understanding Advanced DDE	414
Using Macros To Access Information	414

Getting Used to DDE	418
Summary	422
12 Using Object Linking and Embedding	423
Examining OLE	424
Embedding a Microsoft Draw Object	434
Embedding a Microsoft Sound Recorder Object	437
Embedding Non-OLE Objects	438
Object Packager	439
Using the Object Packager	440
Introducing OLE Client and Server Relationships	443
Summary	445
Part Four: Managing the Windows NT Network	447
13 Exploring Networking with Windows NT	449
Understanding Windows NT and Microsoft LAN Manager	450
LAN Manager Concepts and Terminology under	
Windows NT	450
Windows NT Network Resources	451
Peer Networking	452
Understanding NT Networking Architecture	453
Transport Protocols	454
Using the Control Panel Network Utility	455
Network Name and Domain	455
Network Software and Adapter Cards	457
Bindings	458
Summary	460
14 Understanding the System Registry	461
Understanding the Registry Format	462
Using the Registry	465
Accessing the System Registry with REGEDT32	466
Exploring the Four Root Keys	469
The HKEY_LOCAL_MACHINE Key	469
The HKEY_USERS Key	471
The HKEY_CURRENT_USER Key	472
The HKEY_CLASSES_ROOT Key	473
Recovering the System with System Backups	473
Backing Up the Registry	474
Summary	475

15 Exploring the Windows NT Advanced Server	477
<i>Understanding Client-Server Computing</i>	<i>478</i>
<i>Examining the Windows NT Advanced Server</i>	<i>480</i>
<i>NT Advanced Server Storage-Device Management</i>	<i>481</i>
<i>Fault Tolerance</i>	<i>482</i>
<i>Understanding Security Features</i>	<i>484</i>
<i>Domain Administration</i>	<i>484</i>
<i>Impersonation APIs</i>	<i>485</i>
<i>Understanding Connectivity</i>	<i>486</i>
<i>Understanding Remote Access Service</i>	<i>487</i>
<i>Macintosh Services</i>	<i>488</i>
<i>Summary</i>	<i>489</i>
 Part Five: Appendix	 491
Windows NT Product Directory	493
<i>Productivity Applications</i>	<i>494</i>
<i>Academia</i>	<i>494</i>
<i>Accounting/Financial</i>	<i>495</i>
<i>Communication</i>	<i>500</i>
<i>Contact Management</i>	<i>513</i>
<i>Data Publishing</i>	<i>514</i>
<i>Database</i>	<i>515</i>
<i>Desktop Publishing</i>	<i>518</i>
<i>Desktop Utilities</i>	<i>522</i>
<i>Document Imaging</i>	<i>523</i>
<i>Document Management System</i>	<i>524</i>
<i>Education</i>	<i>525</i>
<i>Electronic Mail</i>	<i>526</i>
<i>FAX Software</i>	<i>527</i>
<i>Financial Reporting</i>	<i>528</i>
<i>Fonts</i>	<i>529</i>
<i>Forms Processing</i>	<i>530</i>
<i>Graphics/Graphic Arts</i>	<i>531</i>
<i>Paint/Image Editing</i>	<i>539</i>
<i>Personal Information Managers</i>	<i>540</i>
<i>Presentation Graphics</i>	<i>542</i>
<i>Project Management</i>	<i>545</i>

Report Writers	546
Simulation	547
Simulation/CAD	548
Speech Recognition	549
Spreadsheets	550
VT Emulation	551
Word Processors	552
Workgroups	554
Miscellaneous	557
Development Tools	560
Business/Math/Science Libraries	560
Connectivity/Networking	563
OCR Development Tools	566
Tools/Libraries—Network/UI Abstraction	567
Tools/Libraries—Other	568
Utilities	569
Miscellaneous	573
Vertical Applications	574
Eis/Decision Support Systems	574
Mathematical Analysis/Statistics	575
Workstation Applications—CAD/CAM	576
Wide Area Networking	577
Multimedia Authoring Tools	578
Business Applications/General Productivity	580
Index	581



INTRODUCTION

Introduction

It's finally here! After months of anticipation, thousands of reviews, hundreds of press releases, and endless speculation, Microsoft Windows NT is available for Intel-based computers.

When Microsoft released version 3.0 of the Windows operating system in 1990, PC users entered an entirely new world of computing. They were freed from the constraints imposed by the MS-DOS operating system and the underlying architecture of the original IBM PC (a computer originally conceived when no one thought that any computer user would need more than 64K of RAM).

In this new "Windows" world, PC users took advantage of all the memory their computers could access. Proportionally spaced fonts, a wide range of video and printer options, and updated screen graphics came to every desktop as a part of the operating system. Each user had a WYSIWYG (what-you-see-is-what-you-get) display, and could be reasonably assured that what was on the screen was what would print on paper. This was a brave and exciting new world.

With the introduction of version 3.1 of Windows, Microsoft updated these features and added a new font technology, more memory-management capabilities, integrated multimedia features, and advanced object-oriented data management. Shortly after Windows 3.1 appeared, Windows for Workgroups added peer-to-peer networking features to the Windows environment. The Windows world expanded greatly, becoming doubly exciting.

Since the introduction of Windows 3.1, Microsoft has been hard at work creating Windows NT, the “New Technology” that will lead Windows deeper into the nineties. This advanced operating system uses the Windows 3.1 interface, but adds significant capabilities underneath the interface.

For example, Windows NT introduces several security features: logon accounts; user privileges; and a new, optimized file system (known as the NT File System, or NTFS) that enables file-level security control and better data recovery.

In addition, this version of Windows is not intended just for the PC. Although the initial release of Windows NT runs on the Intel 80x86 hardware platform, versions also are available for RISC-based computers. Microsoft plans versions of Windows NT for an ever-expanding group of computer architectures. The enticing world of Windows becomes even larger!

Inside Windows NT prepares the experienced user of a command-line-based operating system—such as MS-DOS, OS/2, or UNIX—to productively enter the world of Windows NT. It helps you to make the shift from the command-line environment to the milieu of the graphical user interface quickly and easily.

Inside Windows NT teaches you the basics of the Windows graphical user interface, helping you to acquire the new working habits that such an interface demands of you. It also shortens your learning curve by introducing you to the advanced features that Windows NT offers a user of software written for Windows NT itself, Windows 3.1, MS-DOS, OS/2, and POSIX.

This book is also for the experienced Windows user making the transition to using Windows NT. It describes all the new features implemented by this new version of Windows, and it acquaints you with the differences you need to be aware of.

Most of all, *Inside Windows NT* is for real-world users of computer systems. It approaches the operating system from the point of view of the person who actually uses a computer to accomplish the tasks that make up the working day.

Many Windows NT books take a very high-level approach to explaining the complexities of the new Windows NT environment. *Inside Windows NT*, on the other hand, understands that you have a job to do and that you want to learn as much about Windows NT as you need to in order to get your work done.

With an operating system that offers the complexities that Windows NT offers, understanding the *Inside Windows NT* point of view is essential. Users easily can get lost by trying all the new features and capabilities, and easily can be intimidated by the sheer scale and power of Windows NT.

Inside Windows NT can serve as your guide to the part of the operating system that you use to accomplish work, placing all the new features and capabilities into your working perspective. *Inside Windows NT* not only shows you how to get up to speed quickly, but, more importantly, how to get your work done as efficiently as possible.

How This Book Is Different from Most Windows NT Books

Inside Windows NT is designed and written to accommodate the way you work. The authors and editors at New Riders Publishing know that you do not have a great deal of time to learn Windows NT, and that you are anxious to begin using