



Microsoft®

Microsoft

Windows 2000 Administrator's Pocket Consultant

- A fast-answers, daily-operations guide to Windows 2000
- Quick-reference tables, lists, and step-by-step instructions

Suranaree University of Technology



3105100651990

**William R.
Stanek**

IT Professional

Table of Contents

Acknowledgments

xxiii

Introduction

xxv

Part I

Microsoft Windows 2000

Administration Fundamentals

1	Overview of Microsoft Windows 2000 System Administration	3
	Microsoft Windows 2000 Professional and Server	3
	Domain Controllers and Member Servers	4
	Add-On Components and Services	5
	Other Windows 2000 Resources	6
	Frequently Used Tools	8
	Using Control Panel Utilities	9
	Using Graphical Administrative Tools	10
	Key Graphical Administrative Tools	11
	Tools and Configuration	13
	Using Command-Line Utilities	13
	Utilities to Know	13
	Using NET Tools	14
2	Managing Microsoft Windows 2000 Workstations and Servers	15
	Managing Network Systems	16
	Connecting to Other Computers	17
	Sending Console Messages	17
	Exporting Information Lists	18
	Using Computer Management System Tools	19
	Using Computer Management Storage Tools	19
	Working with Services and Applications	20

Managing System Environments, Profiles, and Properties	20
The General Tab	20
The Network Identification Tab	21
The Hardware Tab	22
The User Profiles Tab	24
The Advanced Tab	24
Configuring System and User Environment Variables	27
Creating an Environment Variable	27
Configuring System Startup and Recovery	29
Setting Startup Options	29
Managing Hardware Devices and Drivers	31
Viewing and Managing Hardware Devices	31
Installing and Uninstalling Device Drivers	32
Installing, Uninstalling, and Troubleshooting Hardware	34
3 Monitoring Processes, Services, and Events 37	
Managing Applications, Processes, and Performance	37
Task Manager	38
Administering Applications	38
Administering Processes	39
Viewing System Performance	40
Managing System Services	42
Common Windows 2000 Services	44
Starting, Stopping, and Pausing Services	46
Configuring Service Startup	46
Configuring Service Logon	47
Configuring Service Recovery	48
Event Logging and Viewing	50
Accessing and Using the Event Logs	50
Setting Event Log Options	52
Clearing the Event Logs	53
Archiving the Event Logs	53
Monitoring Server Performance and Activity	55
Why Monitor Your Server?	56

Getting Ready to Monitor	56
Using Performance Monitor	56
Choosing Counters to Monitor	57
Using Performance Logs	59
Replaying Performance Logs	64
Configuring Alerts for Performance Counters	65
4 Automating Administrative Tasks, Policies, and Procedures	69
Group Policy Management	69
Understanding Group Policies	70
In What Order Are Multiple Policies Applied?	70
When Are Group Policies Applied?	71
Managing Local Group Policies	71
Managing Site, Domain, and Unit Policies	72
Working with Group Policies	75
Getting to Know the Group Policy Console	76
Centrally Managing Special Folders	77
Using Administrative Templates to Set Policies	80
User and Computer Script Management	83
Scheduling Tasks	86
Utilities for Scheduling Tasks	86
Preparing to Schedule Tasks	87
Scheduling Tasks with Task Scheduler	87
Scheduling Tasks with the At Utility	92

Part II

Microsoft Windows 2000

Directory Services Administration

5 Using Active Directory Service	97
Introducing Active Directory Service	97
Active Directory and DNS	97
Getting Started with Active Directory	98
Working with Domain Structures	98
Understanding Domains	99
Understanding Domain Forests and Domain Trees	99

Understanding Organizational Units	100
Understanding Sites and Subnets	102
Working with Active Directory Domains	103
Using Windows 2000 with Active Directory	104
Using Windows NT with Active Directory	104
Using Windows 95 and Windows 98 with Active Directory	107
Understanding the Directory Structure	109
Exploring the Data Store	110
Exploring Global Catalogs	110
Replication and Active Directory	112
Active Directory and LDAP	113
Understanding Operations Master Roles	113
6 Core Active Directory Service Administration 115	
Tools for Managing Active Directory Services	115
Active Directory Administration Tools	115
Active Directory Support Tools	116
Using the Active Directory Users And Computers Tool	117
Starting Active Directory Users And Computers	117
Getting Started with Active Directory Users And Computers	117
Connecting to a Domain Controller	118
Connecting to a Domain	119
Viewing Advanced Options	119
Searching for Accounts and Shared Resources	120
Managing Computer Accounts	121
Creating Computer Accounts on a Workstation or Server	121
Creating Computer Accounts in Active Directory Users And Computers	122
Viewing and Editing Computer Account Properties	124
Deleting, Disabling, and Enabling Computer Accounts	124
Resetting Locked Computer Accounts	124
Moving Computer Accounts	125

Managing Computers	125
Joining a Computer to a Domain or Workgroup	126
Managing Domain Controllers, Roles, and Catalogs	131
Installing and Demoting Domain Controllers	131
Viewing and Transferring Domain-Wide Roles	132
Viewing and Transferring Domain Naming Master Role	132
Viewing and Transferring Schema Master Role	134
Configuring Global Catalogs	134
Managing Organizational Units	135
Creating Organizational Units	135
Viewing and Editing Organizational Unit Properties	136
Renaming and Deleting Organizational Units	136
Moving Organizational Units	136
7 Understanding User and Group Accounts 137	
The Windows 2000 Security Model	137
Authentication Protocols	137
Access Controls	138
Differences Between User and Group Accounts	139
User Accounts	139
Groups	140
Default User Accounts and Groups	144
Built-In User Accounts	145
Predefined User Accounts	145
Built-In Groups	147
Predefined Groups	147
Implicit Groups and Special Identities	148
Account Capabilities	149
Privileges	150
Logon Rights	152
Built-In Capabilities for Groups in Active Directory	153
Using Default Group Accounts	156
Groups Used by Administrators	156

Groups Used by Operators	157
Groups Used by Users	159
Groups Used by Computers	160
Implicit Groups and Identities	161
8 Creating User and Group Accounts 163	
User Account Setup and Organization	163
Account Naming Policies	163
Password and Account Policies	165
Configuring Account Policies	168
Configuring Password Policies	169
Configuring Account Lockout Policies	171
Configuring Kerberos Policies	173
Configuring User Rights Policies	174
Configuring User Rights Globally	175
Configuring User Rights Locally	176
Adding a User Account	177
Creating Domain User Accounts	177
Creating Local User Accounts	180
Adding a Group Account	181
Creating a Global Group	182
Creating a Local Group and Assigning Members	183
Handling Global Group Membership	184
Managing Individual Membership	184
Managing Multiple Memberships	185
Setting the Primary Group for Users and Computers	185
9 Managing Existing User and Group Accounts 187	
Managing User Contact Information	187
Setting Contact Information	187
Searching for Users and Creating Address Book Entries	189
Configuring the User's Environment Settings	190
System Environment Variables	190
Logon Scripts	191
Assigning Home Directories	192

Setting Account Options and Restrictions	193
Managing Logon Hours	194
Setting Permitted Logon Workstations	196
Setting Dial-In Privileges	197
Setting Account Security Options	199
Managing User Profiles	200
Local, Roaming, and Mandatory Profiles	200
Using the System Utility to Manage Local Profiles	202
Updating User and Group Accounts	206
Renaming User and Group Accounts	206
Copying Domain User Accounts	207
Deleting User and Group Accounts	208
Changing and Resetting Passwords	208
Enabling User Accounts	209
Troubleshooting Logon Problems	210

Part III

Microsoft Windows 2000 Data Administration

10 Managing File Systems and Drives	213
Adding Hard Disk Drives	213
Physical Drives	214
Preparing a Drive for Use	215
Installing and Checking For a New Drive	218
Understanding Drive Status	219
Working with Basic and Dynamic Disks	220
Using Basic and Dynamic Disks	220
Special Considerations for Basic and Dynamic Disks	221
Marking an Active Partition	221
Changing Drive Types	221
Reactivating Dynamic Disks	223
Rescanning Disks	224
Moving a Dynamic Disk to a New System	224
Using Basic Disks and Partitions	225

Understanding Drive Partitions	225
Creating Partitions and Logical Drives	226
Formatting Partitions	229
Updating the Boot Disk	230
Managing Existing Partitions and Drives	232
Assigning Drive Letters and Paths	232
Changing or Deleting the Volume Label	233
Deleting Partitions and Drives	234
Converting a Volume to NTFS	234
Checking a Drive for Errors and Bad Sectors	235
Defragmenting Disks	237
Compressing Drives and Data	239
Encrypting Drives and Data	240
11 Administering Volume Sets and RAID Arrays	243
Using Volumes and Volume Sets	244
Volume Basics	244
Understanding Volume Sets	245
Creating Volumes and Volume Sets	245
Deleting Volumes and Volume Sets	248
Extending a Simple or Spanned Volume	249
Managing Volumes	249
Improved Performance and Fault Tolerance with RAIDs	250
Implementing RAID on Windows 2000 Servers	251
Implementing RAID 0: Disk Striping	251
Implementing RAID 1: Disk Mirroring	252
Implementing RAID 5: Disk Striping with Parity	254
Managing RAIDs and Recovering from Failures	255
Breaking a Mirrored Set	255
Resynchronizing and Repairing a Mirrored Set	256
Repairing a Mirrored System Volume to Enable Boot	256
Removing a Mirrored Set	257
Repairing a Stripe Set Without Parity	257
Regenerating a Stripe Set with Parity	258

12	Managing Files and Directories	259
	Windows 2000 File Structures	259
	Major Features of FAT and NTFS	259
	File Naming	261
	Accessing Long File Names Under MS-DOS	262
	Exploring Files and Directories	263
	Using Windows Explorer	263
	Customizing Folder Views	266
	Formatting Floppy Disks and Other Removable Disks	270
	Copying Floppy Disks	270
	Managing Files	271
	Selecting Files and Directories	271
	Copying Files and Folders by Dragging	271
	Copying Files and Folders to Locations That Aren't Displayed	272
	Copying and Pasting Files	272
	Moving Files by Cutting and Pasting	272
	Renaming Files and Directories	273
	Deleting Files and Directories	273
	Creating Folders	273
	Examining Drive Properties	274
	Examining File and Folder Properties	274
13	Data Sharing, Security, and Auditing	277
	Sharing Folders on Local and Remote Systems	277
	Viewing Existing Shares	278
	Creating Shared Folders	279
	Creating Additional Shares on an Existing Share	281
	Creating a Web Share	282
	Managing Share Permissions	284
	The Different Share Permissions	284
	Viewing Share Permissions	284
	Configuring Share Permissions	285
	Modifying Existing Share Permissions	287

Removing Share Permissions for Users and Groups	287
Managing Existing Shares	287
Understanding Special Shares	287
Connecting to Special Shares	288
Viewing User and Computer Sessions	289
Stop Sharing Files and Folders	292
Connecting to Network Drives	293
Mapping a Network Drive	293
Disconnecting a Network Drive	294
Object Management, Ownership, and Inheritance	294
Objects and Object Managers	294
Object Ownership and Transfer	295
Object Inheritance	296
File and Folder Permissions	297
Understanding File and Folder Permissions	297
Setting File and Folder Permissions	300
Auditing System Resources	302
Setting Auditing Policies	302
Auditing Files and Folders	304
Auditing Active Directory Objects	306
14 Data Backup and Recovery 307	
Creating a Backup and Recovery Plan	307
Figuring Out a Backup Plan	307
The Basic Types of Backup	308
Differential and Incremental Backups	309
Selecting Backup Devices and Media	310
Common Backup Solutions	310
Buying and Using Tapes	311
Backing Up Your Data	312
Getting Started with the Backup Utility	312
Setting Default Options for Backup	314
Backing Up Data with the Backup Wizard	318
Backing Up Files Without the Wizard	320

Recovering Data Using the Restore Wizard	323
Recovering Data Without the Wizard	326
Restoring Active Directory	329
Backing Up and Restoring Data on Remote Systems	329
Disaster Recovery and Preparation	329
Creating an Emergency Repair Disk	330
Creating Setup Boot Disks	331
Starting a System in Safe Mode	331
Using the Emergency Repair Disk to Recover a System	332
Working with the Recovery Console	333
Managing Media Pools	336
Understanding Media Pools	336
Preparing Media for Use in the Free Media Pool	337
Moving Media to a Different Media Pool	337
Creating Application Media Pools	337
Changing the Media Type in a Media Pool	338
Setting Allocation and Deallocation Policies	338
Deleting Application Media Pools	338

Part IV

Microsoft Windows 2000 Network Administration

15 Managing TCP/IP Networking 341

Installing TCP/IP Networking	341
Installing Network Adapters	342
Installing the TCP/IP Protocol	342
Configuring TCP/IP Networking	343
Configuring Static IP Addresses	344
Configuring Dynamic IP Addresses	346
Configuring Multiple IP Addresses and Gateways	347
Configuring DNS Resolution	348
Configuring WINS Resolution	350
Configuring Additional Networking Components	352
Installing and Uninstalling Networking Components	352
Installing Optional Networking Components	353

Managing Network Connections	356
Creating Network Connections	356
Enabling and Disabling Network Connections	357
Deleting Network Connections	357
Modifying and Duplicating Connections	358
Testing the TCP/IP Configuration	358
16 Administering Network Printers and Print Services	359
Troubleshooting Printer Problems	359
Installing Printers	361
Using Local and Network Printers	361
Installing Print Devices on a Local or Remote Print Server	362
Installing Local Print Devices	368
Connecting to Printers Created on the Network	369
Solving Spooling Problems	370
Configuring Printer Properties	371
Adding Comments and Location Information	371
Managing Printer Drivers	372
Setting a Separator Page and Changing Print Device Mode	373
Changing the Printer Port	373
Scheduling and Prioritizing Print Jobs	374
Starting and Stopping Printer Sharing	375
Setting Printer Access Permissions	376
Auditing Print Jobs	377
Setting Document Defaults	377
Configuring Print Server Properties	377
Viewing and Creating Printer Forms	377
Locating the Spool Folder and Enabling Printing on NTFS	378
Managing High Volume Printing	379
Logging Printer Events	379
Removing Print Job Completion and Notification	379
Managing Print Jobs on Local and Remote Printers	380

Using the Print Management Window	380
Pausing the Printer and Resuming Printing	381
Emptying the Print Queue	381
Pausing, Resuming, and Restarting Individual Document Printing	381
Removing a Document and Canceling a Print Job	381
Checking the Properties of Documents in the Printer	382
Setting the Priority of Individual Documents	382
Scheduling the Printing of Individual Documents	382
17 Running DHCP Clients and Servers 383	
Understanding DHCP	383
The DHCP Client and the IP Address	383
Checking IP Address Assignment	384
Understanding Scopes	385
Installing a DHCP Server	386
Installing DHCP Components	386
Starting and Using The DHCP Console	386
Connecting to Remote DHCP Servers	388
Starting and Stopping a DHCP Server	388
Authorizing a DHCP Server in Active Directory	389
Configuring DHCP Servers	389
Binding a Multihomed DHCP Server to a Specific IP Address	389
Updating DHCP Statistics	390
DHCP Auditing and Troubleshooting	390
Integrating DHCP and DNS	392
Avoiding IP Address Conflicts	392
Saving and Restoring the DHCP Configuration	394
Managing DHCP Scopes	394
Creating and Managing Superscopes	394
Creating and Managing Scopes	395
Managing the Address Pool, Leases, and Reservations	402
Viewing Scope Statistics	402
Setting a New Exclusion Range	402

Deleting an Exclusion Range	403
Reconciling Leases and Reservations	403
Reserving DHCP Addresses	403
Modifying Reservation Properties	404
Deleting Leases and Reservations	405
Backing Up and Restoring the DHCP Database	405
The Backup Directory	405
Restoring the Database from Backup	406

18 Maintaining WINS 407

Understanding WINS and NetBIOS Over TCP/IP	408
Configuring WINS Clients and Servers	408
Name Resolution Methods	409
Using The WINS Console	410
Getting to Know the WINS Console	410
Adding a WINS Server to the WINS Console	410
Starting and Stopping a WINS Server	411
Viewing Server Statistics	411
Configuring WINS Servers	412
Updating WINS Statistics	413
Managing Name Registration, Renewal, and Release	413
Logging WINS Events in the Windows Event Logs	415
Setting the Version ID for the WINS Database	415
Configuring Burst Handling of Name Registrations	416
Saving and Restoring the WINS Configuration	416
Configuring WINS Database Replication	417
Setting Default Replication Parameters	417
Creating Push and Pull Partners	420
Changing Replication Type and Settings for Partners	420
Triggering Database Replication	421
Managing the WINS Database	422
Examining WINS Database Mappings	422
Cleaning and Scavenging the WINS Database	422
Verifying the Consistency of the WINS Database	422

Backing Up and Restoring the WINS Database	424
Clearing Out WINS and Starting with a Fresh Database	425
19 Optimizing DNS 427	
Understanding DNS	427
Integrating Active Directory and DNS	428
Enabling DNS on the Network	428
Installing DNS Servers	429
Installing the DNS Server Service	429
Configuring a Primary DNS Server	430
Configuring a Secondary DNS Server	432
Configuring Reverse Lookups	433
Managing DNS Servers	434
Adding Remote Servers to the DNS Console	435
Removing a Server from the DNS Console	435
Starting and Stopping a DNS Server	436
Creating Child Domains Within Zones	436
Creating Child Domains in Separate Zones	436
Deleting a Domain or Subnet	438
Managing DNS Records	438
Adding Address and Pointer Records	439
Adding DNS Aliases with CNAME	441
Adding Mail Exchange Servers	442
Adding Name Servers	443
Viewing and Updating DNS Records	444
Updating Zone Properties and the SOA Record	444
Modifying the Start of Authority Record	444
Notifying Secondaries of Changes	446
Restricting Zone Transfers	447
Setting the Zone Type	447
Enabling and Disabling Dynamic Updates	447
Managing DNS Server Configuration and Security	448
Enabling and Disabling IP Addresses for a DNS Server	448

Controlling Access to DNS Servers Outside the Organization	448
Logging DNS Activity	450
Monitoring DNS Server	450
Integrating WINS with DNS	452
Configuring WINS Lookups in DNS	452
Configuring Reverse WINS Lookups in DNS	452
Setting Caching and Time-Out Values for WINS in DNS	454
Configuring Full Integration with NetBIOS Scopes	455
Index	457