# Contents

*Introduction*  

**Chapter 1**  

**Group Policy Essentials**  

- Getting Ready to Use This Book  
  - 2  
- Getting Started with Group Policy  
  - Group Policy Entities and Policy Settings  
  - 7  
  - The Categories of Group Policy  
  - 9  
- Active Directory and Local Group Policy  
  - Understanding Local Group Policy  
  - 14  
  - Group Policy and Active Directory  
  - 17  
  - Linking Group Policy Objects  
  - 20  
  - Final Thoughts on Local GPOs  
  - 25  
- An Example of Group Policy Application  
  - 26  
- Examining the Resultant Set of Policy  
  - At the Site Level  
  - 27  
  - At the Domain Level  
  - 29  
  - At the OU Level  
  - 29  
  - Bringing It All Together  
  - 29  
- Group Policy, Active Directory, and the GPMC  
  - Implementing the GPMC on Your Management Station  
  - 31  
  - Creating a One-Stop-Shop MMC  
  - 36  
- Group Policy 101 and Active Directory  
  - Active Directory Users and Computers vs. GPMC  
  - 38  
  - Adjusting the View within the GPMC  
  - 39  
  - The GPMC-centric View  
  - 41  
- Our Own Group Policy Examples  
  - More about Linking and the Group Policy Objects Container  
  - 43  
  - Applying a Group Policy Object to the Site Level  
  - 44  
  - Applying Group Policy Objects to the Domain Level  
  - 47  
  - Applying Group Policy Objects to the OU Level  
  - 50  
  - Testing Your Delegation of Group Policy Management  
  - 52  
  - Understanding Group Policy Object Linking Delegation  
  - 55  
  - Granting OU Admins Access to Create New Group Policy Objects  
  - 58  
  - Creating and Linking Group Policy Objects at the OU Level  
  - 61  
  - Creating a New Group Policy Object Affecting Computers in an OU  
  - 64  
  - Moving Computers into the Human Resources Computers OU  
  - 67  
  - Verifying Your Cumulative Changes  
  - 69  
- Final Thoughts  
  - 71
Chapter 2  Managing Group Policy with the GPMC  73

Common Procedures with the GPMC  74
  Raising or Lowering the Precedence of Multiple Group Policy Objects  78
  Understanding GPMC’s Link Warning  79
  Stopping Group Policy Objects from Applying  80
  Block Inheritance  87
  The Enforced Function  88

Security Filtering and Delegation with the GPMC  90
  Filtering the Scope of Group Policy Objects with Security  91
  User Permissions on Group Policy Objects  100
  Granting Group Policy Object Creation Rights in the Domain  102
  Special Group Policy Operation Delegations  103
  Who Can Create and Use WMI Filters?  104

Performing RSoP Calculations with the GPMC  106
  What’s-Going-On Calculations with Group Policy Results  107
  What-If Calculations with Group Policy Modeling  113

Searching and Commenting Group Policy Objects and Policy Settings  116
  Searching for GPO Characteristics  116
  Filtering Inside a GPO for Policy Settings  118
  Comments for GPOs and Policy Settings  129

Starter GPOs  135
  Creating a Starter GPO  136
  Editing a Starter GPO  136
  Leveraging a Starter GPO  137
  Delegating Control of Starter GPOs  139
  Wrapping Up and Sending Starter GPOs  140
  Should You Use Microsoft’s Pre-created Starter GPOs?  141

Back Up and Restore for Group Policy  142
  Backing Up Group Policy Objects  143
  Restoring Group Policy Objects  146
  Backing Up and Restoring Starter GPOs  148
  Backing Up and Restoring WMI Filters  148
  Backing Up and Restoring IPsec Filters  149

Migrating Group Policy Objects between Domains  150
  Basic Interdomain Copy and Import  150
  Copy and Import with Migration Tables  157

GPMC At-a-Glance Icon View  160

Final Thoughts  160
## Chapter 3  Group Policy Processing Behavior Essentials 163

Group Policy Processing Principles 164  
  Don’t Get Lost 165  
  Initial Policy Processing 166  
  Background Refresh Policy Processing 168  
  Security Background Refresh Processing 182  
  Special Case: Moving a User or a Computer Object 187  
  Windows 8 and Group Policy: Subtle Differences 188  

Policy Application via Remote Access, Slow Links, and after Hibernation 189  
  Windows XP Group Policy over Slow Network Connections 190  
  Windows 8 Group Policy over Slow Network Connections 190  
  What Is Processed over a Slow Network Connection? 192  

Using Group Policy to Affect Group Policy 197  
  Affecting the User Settings of Group Policy 197  
  Affecting the Computer Settings of Group Policy 199  
  The Missing Group Policy Preferences’ Policy Settings 211  

Final Thoughts 212

## Chapter 4  Advanced Group Policy Processing 215

WMI Filters: Fine-Tuning When and Where Group Policy Applies 215  
  Tools (and References) of the WMI Trade 217  
  WMI Filter Syntax 218  
  Creating and Using a WMI Filter 219  
  WMI Performance Impact 220  

Group Policy Loopback Processing 221  
  Reviewing Normal Group Policy Processing 222  
  Group Policy Loopback—Merge Mode 223  
  Group Policy Loopback—Replace Mode 223  

Group Policy with Cross-Forest Trusts 229  
  What Happens When Logging onto Different Clients across a Cross-Forest Trust? 229  
  Disabling Loopback Processing When Using Cross-Forest Trusts 232  
  Understanding Cross-Forest Trust Permissions 232  

Final Thoughts 234
### Chapter 5  Group Policy Preferences  235

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powers of the Group Policy Preferences</td>
<td>237</td>
</tr>
<tr>
<td>Computer Configuration ➨ Preferences</td>
<td>238</td>
</tr>
<tr>
<td>User Configuration ➨ Preferences</td>
<td>249</td>
</tr>
<tr>
<td>Group Policy Preferences Concepts</td>
<td>258</td>
</tr>
<tr>
<td>Preference vs. Policy</td>
<td>259</td>
</tr>
<tr>
<td>The Overlap of Group Policy vs. Group Policy Preferences and Associated Issues</td>
<td>261</td>
</tr>
<tr>
<td>The Lines and Circles and the CRUD Action Modes</td>
<td>275</td>
</tr>
<tr>
<td>Common Tab</td>
<td>282</td>
</tr>
<tr>
<td>Group Policy Preferences Tips, Tricks, and Troubleshooting</td>
<td>294</td>
</tr>
<tr>
<td>Quick Copy, Drag and Drop, Cut and Paste, and Sharing of Settings</td>
<td>294</td>
</tr>
<tr>
<td>Multiple Preference Items at a Level</td>
<td>296</td>
</tr>
<tr>
<td>Temporarily Disabling a Single Preference Item or Extension Root</td>
<td>298</td>
</tr>
<tr>
<td>Environment Variables</td>
<td>298</td>
</tr>
<tr>
<td>Managing Group Policy Preferences: Hiding Extensions from Use</td>
<td>301</td>
</tr>
<tr>
<td>Troubleshooting: Reporting, Logging, and Tracing</td>
<td>302</td>
</tr>
<tr>
<td>Final Thoughts</td>
<td>310</td>
</tr>
</tbody>
</table>

### Chapter 6  Managing Applications and Settings Using Group Policy  311

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative Templates: A History and Policy vs. Preferences</td>
<td>312</td>
</tr>
<tr>
<td>Administrative Templates: Then and Now</td>
<td>312</td>
</tr>
<tr>
<td>Policy vs. Preference</td>
<td>313</td>
</tr>
<tr>
<td>ADM vs. ADMX and ADML Files</td>
<td>318</td>
</tr>
<tr>
<td>ADM File Introduction</td>
<td>318</td>
</tr>
<tr>
<td>Updated GPMC’s ADMX and ADML Files</td>
<td>318</td>
</tr>
<tr>
<td>ADM vs. ADMX Files—At a Glance</td>
<td>320</td>
</tr>
<tr>
<td>ADMX and ADML Files: What They Do and the Problems They Solve</td>
<td>321</td>
</tr>
<tr>
<td>Problem and Solution 1: Tackling SYSVOL Bloat</td>
<td>321</td>
</tr>
<tr>
<td>Problem 2: How Do We Deal with Multiple Languages?</td>
<td>321</td>
</tr>
<tr>
<td>Problem 3: How Do We Deal with “Write Overlaps”?</td>
<td>323</td>
</tr>
<tr>
<td>Problem 4: How Do We Distribute Updated Definitions to All Our Administrators?</td>
<td>324</td>
</tr>
<tr>
<td>The Central Store</td>
<td>325</td>
</tr>
<tr>
<td>The Windows ADMX/ADML Central Store</td>
<td>327</td>
</tr>
<tr>
<td>Creating and Editing GPOs in a Mixed Environment</td>
<td>331</td>
</tr>
</tbody>
</table>
Contents

Scenario 1: Start by Creating and Editing a GPO Using the Older GPMC. Edit Using Another Older GPMC Management Station. 331
Scenario 2: Start by Creating and Editing a GPO with the Older GPMC. Edit Using the Updated GPMC. 332
Scenario 3: Start by Creating and Editing a GPO Using the Updated GPMC. Edit Using Another Updated GPMC Management Station. 334
Scenario 4: Start by Creating and Editing a GPO Using an Updated GPMC Management Station. Edit Using an Older GPMC Management Station. 334
ADM and ADMX Templates from Other Sources 334
Using ADM Templates with the Updated GPMC 335
Using ADMX Templates from Other Sources 337
ADMX Migrator and ADMX Editor Tools 338
ADMX Migrator 339
ADMX Creation and Editor Tools 341
PolicyPak Community Edition and PolicyPak Professional 341
PolicyPak Concepts and Installation 344
PolicyPak Pregame Setup 344
PolicyPak Quick Installation 345
Getting Started Immediately with PolicyPak’s Preconfigured Paks 346
PolicyPak Final Thoughts and Wrap-Up 352
Final Thoughts 353

Chapter 7 Troubleshooting Group Policy 355
Under the Hood of Group Policy 357
Inside Local Group Policy 357
Inside Active Directory Group Policy Objects 360
The Birth, Life, and Death of a GPO 362
How Group Policy Objects Are “Born” 362
How a GPO “Lives” 364
Death of a GPO 391
How Client Systems Get Group Policy Objects 392
The Steps to Group Policy Processing 392
Client-Side Extensions 395
Where Are Administrative Templates Registry Settings Stored? 403
Why Isn’t Group Policy Applying? 405
Reviewing the Basics 406
Advanced Inspection 408
Client-Side Troubleshooting 418
RSoP for Windows Clients 419
Chapter 8

Implementing Security with Group Policy

The Two Default Group Policy Objects 448
- GPOs Linked at the Domain Level 449
- Group Policy Objects Linked to the Domain Controllers OU 453
- Oops, the “Default Domain Policy” GPO and/or “Default Domain Controllers Policy” GPO Got Screwed Up! 455

The Strange Life of Password Policy 456
- What Happens When You Set Password Settings at an OU Level 457
- Fine-Grained Password Policy 458

Inside Auditing with and without Group Policy 463
- Auditable Events Using Group Policy 464
- Auditing File Access 470
- Auditing Group Policy Object Changes 470
- Advanced Audit Policy Configuration 475

Restricted Groups 480
- Strictly Controlling Active Directory Groups 481
- Strictly Applying Group Nesting 484
- Which Groups Can Go into Which Other Groups via Restricted Groups? 484

Restrict Software: Software Restriction Policy and AppLocker 485
- Inside Software Restriction Policies 486
- Software Restriction Policies’ “Philosophies” 487
- Software Restriction Policies’ Rules 488
- Restricting Software Using AppLocker 495

Controlling User Account Control with Group Policy 514
- Just Who Will See the UAC Prompts, Anyway? 517
- Understanding the Group Policy Controls for UAC 521
- UAC Policy Setting Suggestions 530

Wireless (802.3) and Wired Network (802.11) Policies 534
- 802.11 Wireless Policy for Windows XP 534
- 802.11 Wireless Policy and 802.3 Wired Policy for Windows 8 536

Configuring Windows Firewall with Group Policy 537
- Manipulating the Windows XP Firewall 539
Contents

Windows Firewall with Advanced Security 542
(for Windows 8)—WFAS 542
IPsec (Now in Windows Firewall with Advanced Security) 551
How Windows Firewall Rules Are Ultimately Calculated 556
Final Thoughts 560

Chapter 9  Profiles: Local, Roaming, and Mandatory 561

- What Is a User Profile? 562
  - The NTUSER.DAT File 562
- Profile Folders for Type 1 Computers (Windows XP and Windows 2003 Server) 563
- Profile Folders for Type 2 Computers (Windows Vista and Later) 565
- The Default Local User Profile 570
- The Default Network User Profile 573

- Roaming Profiles 578
  - Setting Up Roaming Profiles 579
  - Testing Roaming Profiles 583
  - Roaming and Nonroaming Folders 586
  - Managing Roaming Profiles 590
  - Manipulating Roaming Profiles with Computer Group Policy Settings 592
  - Manipulating Roaming Profiles with User Group Policy Settings 604

- Mandatory Profiles 609
  - Establishing Mandatory Profiles for Windows XP 610
  - Establishing Mandatory Profiles for Windows 8 612
  - Mandatory Profiles—Finishing Touches 612
  - Forced Mandatory Profiles (Super-Mandatory) 613

Final Thoughts 615

Chapter 10  Implementing a Managed Desktop, Part 1: Redirected Folders, Offline Files, and the Synchronization Manager 617

- Overview of Change and Configuration Management 618
- Redirected Folders 620
  - Available Folders to Redirect 620
  - Redirected Documents/My Documents 621
  - Redirecting the Start Menu and the Desktop 639
  - Redirecting the Application Data Folder 641
- Group Policy Setting for Folder Redirection 641
- Troubleshooting Redirected Folders 644
Offline Files and Synchronization 646
Making Offline Files Available 647
Inside Windows 8 File Synchronization 650
Handling Conflicts 658
Client Configuration of Offline Files 659
Using Folder Redirection and Offline Files over Slow Links 668
Synchronizing over Slow Links with Redirected My Documents 669
Synchronizing over Slow Links with Regular Shares 670
Teaching Windows 7 and Windows 8 How to React to Slow Links 671
Using Group Policy to Configure Offline Files (User and Computer Node) 675
Troubleshooting Sync Center 683
Turning Off Folder Redirection’s Automatic Offline Caching for Desktops 685
Final Thoughts 695

Chapter 11
The Managed Desktop, Part 2: Software Deployment via Group Policy 697

Group Policy Software Installation (GPSI) Overview 697
The Windows Installer Service 699
Understanding .MSI Packages 700
Utilizing an Existing .MSI Package 700
Assigning and Publishing Applications 705
Assigning Applications 705
Publishing Applications 706
Rules of Deployment 707
Package-Targeting Strategy 708
Advanced Published or Assigned 717
The General Tab 717
The Deployment Tab 718
The Upgrades Tab 722
The Categories Tab 724
The Modifications Tab 724
The Security Tab 725
Default Group Policy Software Installation Properties 726
The General Tab 726
The Advanced Tab 727
The File Extensions Tab 728
The Categories Tab 728
## Contents

Removing Applications
- Users Can Manually Change or Remove Applications 729
- Automatically Removing Assigned or Published .MSI Applications 729
- Forcibly Removing Assigned or Published .MSI Applications 730

Using Group Policy Software Installation over Slow Links 732
MSI, the Windows Installer and Group Policy
- Inside the MSIEEXEC Tool 735
- Patching a Distribution Point 736
- Affecting Windows Installer with Group Policy 738

Deploying Office 2010 and Office 2013 Using Group Policy 741
- Steps to Office 2010/2013 Deployment Using Group Policy 742
- Result of Your Office Deploying Using Group Policy 751

Systems Center Configuration Manager vs. Group Policy 753
- GPSI and Configuration Manager Coexistence 755

Final Thoughts 756

### Chapter 12

**Finishing Touches with Group Policy: Scripts, Internet Explorer, Hardware Control, and Printer Deployment** 757

Scripts: Logon, Logoff, Startup, and Shutdown 757
- Non-PowerShell-Based Scripts 758
- Deploying PowerShell Scripts to Windows 7 and Later Clients 761

Managing Internet Explorer with Group Policy 762
- Internet Explorer Maintenance—Where Is It? 763
- Managing Internet Explorer with Group Policy Preferences 765
- Internet Explorer’s Group Policy Settings 765
- Managing Internet Explorer using the IEAK 766

Restricting Access to Hardware via Group Policy 768
- Group Policy Preferences Devices Extension 769

Restricting Driver Access with Policy Settings for
- Windows Vista and Later 773
- Getting a Handle on Classes and IDs 774
- Restricting or Allowing Your Hardware via Group Policy 777
- Understanding the Remaining Policy Settings for
  - Hardware Restrictions 778

Assigning Printers via Group Policy 780
- Zapping Down Printers to Users and Computers
  (a Refresher) 780

Final Thoughts for This Chapter and for the Book 789
### Appendix A  Group Policy and VDI

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why Is VDI Different?</td>
<td>792</td>
</tr>
<tr>
<td>Tuning Your Images for VDI</td>
<td>793</td>
</tr>
<tr>
<td> Specific Functions to Turn Off for VDI Machines</td>
<td>794</td>
</tr>
<tr>
<td> Group Policy Settings to Set and Avoid for Maximum VDI Performance</td>
<td>795</td>
</tr>
<tr>
<td>Group Policy Tweaks for Fast VDI Video</td>
<td>796</td>
</tr>
<tr>
<td> Tweaking RDP Using Group Policy for VDI</td>
<td>797</td>
</tr>
<tr>
<td> Tweaking RemoteFX using Group Policy for VDI</td>
<td>798</td>
</tr>
<tr>
<td> Managing and Locking Down Desktop UI Tweaks</td>
<td>799</td>
</tr>
<tr>
<td>Final Thoughts for VDI and Group Policy</td>
<td>801</td>
</tr>
</tbody>
</table>

### Appendix B  Security Configuration Manager

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCM: Installation</td>
<td>805</td>
</tr>
<tr>
<td> SCM: Getting Around</td>
<td>806</td>
</tr>
<tr>
<td> SCM: Usual Use Case</td>
<td>807</td>
</tr>
<tr>
<td> Importing Existing GPOs</td>
<td>814</td>
</tr>
<tr>
<td> Comparing and Merging Baselines</td>
<td>814</td>
</tr>
<tr>
<td>LocalGPO Tool</td>
<td>816</td>
</tr>
<tr>
<td> Installing SCM's LocalGPO Tool</td>
<td>817</td>
</tr>
<tr>
<td> Using SCM's LocalGPO</td>
<td>817</td>
</tr>
<tr>
<td>Final Thoughts on LocalGPO and SCM</td>
<td>823</td>
</tr>
</tbody>
</table>

### Appendix C  Windows Intune (And What It Means to Group Policy Admins)

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Getting Started with Windows Intune</td>
<td>826</td>
</tr>
<tr>
<td> Using Windows Intune</td>
<td>829</td>
</tr>
<tr>
<td>Setting Up Windows Intune Groups</td>
<td>829</td>
</tr>
<tr>
<td> Setting Up Policies Using Windows Intune</td>
<td>830</td>
</tr>
<tr>
<td>Windows Intune and Group Policy Conflicts</td>
<td>831</td>
</tr>
<tr>
<td>Final Thoughts on Windows Intune</td>
<td>832</td>
</tr>
</tbody>
</table>

---

**Index** 835