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Included

Self-Paced

MCSE Training Kit

Microsoft®

Windows® 2000 Server

- Official Microsoft study guide for MCP Exam 70-215: *Installing, Configuring, and Administering Microsoft Windows 2000 Server*
- Work at your own pace through the hands-on, skill-building exercises on CD-ROM
- Develop real-world system support expertise by mastering the concepts, procedures, and tasks measured by certification exam objectives

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**MCSE
Study Guide for
Exam
70-215**

self-paced
hands-on training
IT Professional

北京大学出版社

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微软指定 MCSE 教材

MCSE Training Kit Microsoft Windows 2000 Server

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内 容 简 介

本套“MCSE Training Kit”共由6卷组成，专门介绍 Microsoft Windows 2000。

《MCSE Training Kit Microsoft Windows 2000 Server》详细介绍了安装和升级到 Windows 2000 Server 的方法，以及如何使用它的服务扩展包 (Service Packs)；设置网络服务以适合于工作上的协作；管理共享服务和 Web 资源；管理 Windows 2000 磁盘和数据存储；优化系统，使其具有良好的可靠性和稳定性；通过加密文件系统 (EFS)、策略和安全设置工具，维护系统的安全。

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电子信箱: zwxu@mail.263.net.cn

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出版说明

Microsoft 的 MCSE 认证，是几乎为所有的计算机从业人员所熟知的，取得了这一认证，对在国内或国外任职，是一个很好的前题条件。现在，考取 MCSE 的人越来越多，认识到其重要性的人也越来越多。总之，相当多的人已经把其纳入了必须具备的证书之一。

当然，还要看到，MCSE 的考试是用英文进行的，要求参与考试的人员具有足够的英文水平。这也是我们为什么要出版这套影印书的原因之一。因为我们相信，直接阅读这些原文资料，无论从计算机实际能力的提高，还是了解英文专业术语，都是对将要参加的考试有极大帮助的。

这套 MCSE 影印书是属于微软的 Training Kit 系列的，与此同时，我们还推出了一套 Microsoft Windows 2000 Resource Kit 系列影印书。选择这两套书出版，是由于我们考虑到它们有一个共同点，就是都是介绍 Windows 2000 操作系统的。对于未来操作系统的主流，这套书对读者和将参加各类计算机水平考试的人来说，都是有很大参考价值的。

这两套书在实际应用中的重要性可以体现在如下几个方面：

1. IT 业在其整个信息技术生命周期内，微软的 Training Kits 和 Resource Kits 对人员的帮助占据了主导地位。

2. 大多数情况下，IT 人员使用 Resource Kits 来协助自己工作（在配置阶段占 74%，在支持阶段占 84%）。

3. 在进行的调查中，发现大多数 IT 人员认为微软系列非常有用（Training Kits 为 62%，Resource Kits 为 68%）。

4. 如果没有微软系列，IT 业的从业人员就不得使用其他资源（包括其他技术计算机书、杂志、培训班、网站和网络技术等），而这些资源光材料费就得花费近 3000 美金，且劳动力消耗也超过了微软。在不同阶段，情况如下所示：

- 在 IT 整个周期的培训阶段，IT 人员发现在劳动力消耗上，由于有微软的 Training Kits，使他们节约了 1879 美金，Resource Kits 使他们节约了 3142 美金。
- 在评估阶段，数字也是相似的：在劳动力消耗上，微软的 Training Kits 使工作平均节约 1611 美金，Resource Kits 平均节约了 2368 美金。
- 在配置阶段，Training Kits 使每个劳动力平均节约了 5429 美金，Resource Kits 为 1339 美金。
- 在支持阶段，节约数字和配置阶段相似，Training Kits 节约了 5732 美金，Resource Kits

节约了 1754 美金。

5. 微软系列不仅在材料和劳动力消耗的节约上很有价值，在防止错误决策方面也是很有价值的。被调查的 IT 人员中，一半的人发现在防止错误决策方面，微软的 Training Kits 和 Resource Kits 为他们节约了 5000~10000 美金。

6. 被调查的 IT 人员中的 40%认为，微软的 Training Kits 和 Resource Kits 系列中提供的信息和工具是影响他们购买或获得微软产品决定的因素。

7. 58%的 IT 人员已经使用了微软的 Training Kits 和 Resource Kits 系列去配置他们的产品，而且几乎每个人都发现他们是最有用的产品，在配置上给他们帮了很大的忙。

上面的这些数字虽然来自于美国，但对于快速增长的中国 IT 业，无疑同样有着巨大的参考价值。为什么这么说呢？部分原因在本文的前面已经提到了，就是有利于参加 MCSE 的考试。另一个方面，阅读和学习这些书，也不仅仅是为了参加 MCSE 考试，对于希望在国外或国内找到一份好工作的人来说，具备良好的计算机基础是必要的，而这套书正好为他们提供了这样的可能。本书都是由微软的专家们写成的，因此其权威性是不言而喻的。对于大多数人来说，精通这些书中讲述的内容，就是为他们的高级就业敞开了大门。

出版者

About This Book

Welcome to *MCSE Training Kit—Microsoft Windows 2000 Server*.

The training kit teaches you how to install and configure Microsoft Windows 2000 Server. After a brief introduction to the features in all editions of Windows 2000, you will learn how to install Windows 2000 Server through manual and automated installation routines. After installation, you will learn about the various file systems and disk management functions available in Windows 2000 Server. Administering the operating system and Active Directory services is explored because these are integral to your understanding of Windows 2000. In addition, you will learn about network protocols, routing and remote access, and other application server functions such as Terminal Services. Additionally, you will be introduced to monitoring and optimizing Windows 2000 Server.

Note For more information on becoming a Microsoft Certified Systems Engineer, see the section titled “The Microsoft Certified Professional Program” later in this chapter.

Each chapter in this book is divided into lessons. Many lessons include hands-on procedures that allow you to practice or demonstrate a particular concept or skill. Each chapter ends with a short summary of all chapter lessons and a set of review questions to test your knowledge of the chapter material.

The “Getting Started” section of this chapter provides important setup instructions that describe the hardware and software requirements to complete the procedures in this course. It also provides information about the networking configuration necessary to complete some of the hands-on procedures. Read this section thoroughly before you start the lessons.

Intended Audience

This book was developed for information technology (IT) professionals who need to design, plan, implement, and support Windows 2000 Server or who plan to take the related Microsoft Certified Professional exam Exam 70-215: Installing, Configuring, and Administering Microsoft Windows 2000 Server.

Prerequisites

This course requires that students meet the following prerequisites:

- Knowledge of the fundamentals of current networking technology
- Ability to navigate the Windows operating system interface (preferably, the Windows 95, Windows 98, Windows NT, or Windows 2000 interface)
- At least six months of experience supporting a network, or successful completion of the *Networking Essentials, Hands-On Self-Paced Training for Supporting Local and Wide Area Networks* course is recommended
- Experience with basic internal and external operating system commands like CD, Dir, Fdisk, and Format
- A practical knowledge of accessing and changing PC computer BIOS settings
- Previous training or knowledge of Microsoft Windows 2000 Professional
- Previous training or knowledge of Windows NT Server is not required but will facilitate the learning process

Reference Materials

You might find the following reference materials useful:

- *MCP Magazine Online*. Available online at <http://www.mcpmag.com>.
- Microsoft Web site (<http://www.microsoft.com>) and *Microsoft TechNet Technical Plus* available monthly on CD-ROM and the Microsoft Web site.
- *Microsoft Windows 2000 Server Resource Kit*. Microsoft Press, 1999.
- *MCSE Training Kit—Microsoft Windows 2000 Professional*. Microsoft Press, 2000.
- *MCSE Training Kit—Networking Essentials Plus*, 3rd ed. Microsoft Press, 1999.

- Silberschatz A and P. Galvin. *Operating System Concepts*, 5th ed. Addison-Wesley Publishing Company, 1998. This is just one of many good text books that explores operating systems fundamentals.
- *Windows NT Magazine* (soon to be renamed *Windows 2000 Magazine*). This online magazine can be found at <http://www.winntmag.com> and is published by Duke Communications.
- Sysinternals Freeware Web site: <http://www.sysinternals.com>.

About the CD-ROM

The Supplemental Course Materials CD-ROM contains a variety of informational aids that may be used throughout this book. This includes supplemental articles and files used in hands-on exercises. These files can be used directly from the CD-ROM or copied onto your hard drive. For more information regarding the contents and use of the Supplemental Course Materials CD-ROM, see the README.txt on the CD.

Features of This Book

Each chapter opens with a “Before You Begin” section, which prepares you for completing the chapter.

- ▶ The chapters are then broken down into lessons. Many of the lessons contain exercises that give you an opportunity to use the skills presented or explore the part of the application described. All exercises offer step-by-step procedures that are identified with a symbol like the one to the left of this paragraph.

The “Review” section at the end of each chapter allows you to test what you have learned in the chapter’s lessons.

Appendix A, “Questions and Answers” contains all of the book’s questions and corresponding answers.

Notes

Several types of Notes appear throughout the lessons.

- Notes marked **Tip** contain explanations of possible results or alternative methods.
- Notes marked **Important** contain information that is essential to completing a task.




- Notes marked **Note** contain supplemental information.
- Notes marked **Caution** contain warnings about possible loss of data.

Conventions

The following conventions are used throughout this book.

Notational Conventions

- Characters or commands that you type appear in **bold** type.
- *Italic* in syntax statements indicates placeholders for variable information. *Italic* is also used for book titles and URLs.
- Names of files and folders appear in Title Caps, except when you are to type them directly. Unless otherwise indicated, you can use all lowercase letters when you type a file name in a dialog box or at a command prompt.
- File name extensions appear in all lowercase.
- Acronyms appear in all uppercase.
- Monospace type represents code samples, examples of screen text, or entries that you might type at a command prompt or in initialization files.
- Angle brackets <> are used in syntax statements to enclose optional items. For example, <filename> in command syntax indicates that you can choose to type a file name with the command. Type only the information within the brackets, not the brackets themselves.
- Icons represent specific sections in the book as described in the following table.

| Icon | Represents |
|---|--|
|  | A file contained on the CD-ROM. Some files are needed to complete a hands-on practice; others contain supplemental information about the topic being discussed. The purpose of the file and its location are described in the accompanying text. |
|  | A hands-on exercise. You should perform the exercise to give yourself an opportunity to use the skills presented in the lesson. |
|  | Chapter review questions. These questions at the end of each chapter allow you to test what you have learned in the lessons. You will find the answers to the review questions in the Questions and Answers appendix at the end of the book. |

Keyboard Conventions

- A plus sign (+) between two key names means that you must press those keys at the same time. For example, “Press Alt+Tab” means that you hold down Alt while you press Tab.
- A comma (,) between two or more key names means that you must press each of the keys consecutively, not together. For example, “Press Alt, F, X” means that you press and release each key in sequence. “Press Alt+W, L” means that you first press Alt and W together, and then release them and press L.
- You can choose menu commands with the keyboard. Press the Alt key to activate the menu bar, and then sequentially press the keys that correspond to the highlighted or underlined letter of the menu name and the command name. For some commands, you can also press a key combination listed in the menu.
- You can select or clear check boxes or option buttons in dialog boxes with the keyboard. Press the Alt key, and then press the key that corresponds to the underlined letter of the option name. Alternately, you can press Tab until the option is highlighted, and then press the spacebar to select or clear the check box or option button.
- You can cancel the display of a dialog box by pressing the Esc key.

Chapter and Appendix Overview

This self-paced training course combines descriptive text, notes, hands-on procedures, and review questions to teach you to install and configure Windows 2000 Server. It is designed to be completed from beginning to end, but you can choose a customized track and complete only the sections that interest you. (See the next section, “Finding the Best Starting Point for You” for more information.) If you choose the customized track option, see the “Before You Begin” section in each chapter. Any hands-on procedures that require preliminary work from preceding chapters refer to the appropriate chapters.

The book is divided into the following chapters:

- The “About This Book” section contains a self-paced training overview and introduces the components of this training. Read this section thoroughly to get the greatest educational value from this self-paced training and to plan which lessons you will complete. Following the setup information outlined in “About This Book” is critical to the successful completion of the exercises in this training kit.

- Chapter 1, “Introduction to Microsoft Windows 2000,” summarizes Windows 2000 features, operating system architecture, and Windows 2000 directory services.
- Chapter 2, “Installing and Configuring Microsoft Windows 2000 Server,” covers how to prepare, install, upgrade, and troubleshoot a Windows 2000 Server installation.
- Chapter 3, “Unattended Installations of Microsoft Windows 2000 Server,” covers how to prepare for and automate the installation of Windows 2000 Server and server applications.
- Chapter 4, “Microsoft Windows 2000 File Systems,” explores disk management basics, Windows 2000 file systems, and file system security.
- Chapter 5, “Advanced File Systems,” explores the Distributed File System and the File Replication Service.
- Chapter 6, “Active Directory Services,” describes how to plan, implement, and administer Active Directory services.
- Chapter 7, “Administering Microsoft Windows 2000 Server,” covers how to use the MMC, administer user and group accounts, and implement group policies.
- Chapter 8, “Administering Print Services,” provides an overview of Windows 2000 printing, including how to install, administer, and connect a network printer. The chapter also explores the relationship between Active Directory services and printing.
- Chapter 9, “Network Protocols and Services,” introduces network protocols, and provides details about TCP/IP, DHCP, WINS, and DNS.
- Chapter 10, “Routing and Remote Access Service,” covers routing and remote access features, including how to install RAS and VPN and use RRAS tools.
- Chapter 11, “Microsoft Windows 2000 Security,” explores PKI, public key technologies, and Kerberos in Windows 2000. The chapter also covers security configuration tools and implementing auditing in Windows 2000.
- Chapter 12, “Reliability and Availability,” discusses how to manage hardware devices and drivers, implement Windows 2000 backup, build a disaster protection strategy, and recover from a disaster.

- Chapter 13, “Monitoring and Optimization,” describes monitoring and optimizing Windows 2000 performance, provides an overview of SNMP, and discusses how to use Performance Console, Network Monitor, and Task Manager.
- Chapter 14, “Microsoft Windows 2000 Application Servers,” discusses how to install and configure Internet Information Services 5.0, Telnet services, and Terminal Services.
- Appendix A, “Questions and Answers,” lists all the review questions from the book showing the page number where the question appears and the suggested answer.
- Appendix B, “Sample Answer Files for Unattended Setup,” provides information about creating an unattended setup file.
- Appendix C, “Installing Service Packs,” provides information about installing and administering service packs in Windows 2000.

Finding the Best Starting Point For You

Because this book is self-paced, you can skip some lessons and visit them later. Note, however, that in many cases you must complete exercises in each chapter before completing exercises in later chapters. Use the following table to find the best starting point for you.

| If you | Follow this learning path |
|---|--|
| Are preparing to take the Microsoft Certified Professional exam Exam 70-215: Installing, Configuring, and Administering Microsoft Windows 2000 Server | Read the “Getting Started” section. Then work through Chapters 1 and 2. Work through the remaining chapters in any order. Carefully read the “Before You Begin” of each chapter to determine exercise dependencies from previous chapters. |
| Are reviewing information about specific topics from the exam | Use the “Where to Find Specific Skills in This Book” section that follows this table. |

Where to Find Specific Skills in This Book

The following tables provide a list of the skills measured on certification exam Exam 70-215: Installing, Configuring, and Administering Microsoft Windows 2000 Server. The table lists the skill, and where in this book you will find the lesson relating to that skill.

Note Skills required for exams are subject to change without prior notice and at the sole discretion of Microsoft.

Installing Windows 2000 Server

| Skills Being Measured | Location in Book | |
|--|------------------|--------|
| | Chapter | Lesson |
| Perform an attended installation of Windows 2000 Server. | 2 | 1-2 |
| Perform an unattended installation of Windows 2000 Server. | 3 | 1-3 |
| <ul style="list-style-type: none"> ▪ Create unattended answer files by using Setup Manager to automate the installation of Windows 2000 Server. | 3 | 1-3 |
| <ul style="list-style-type: none"> ▪ Create and configure automated methods for installation of Windows 2000. | 3 | 1-3 |
| Upgrade a server from Microsoft Windows NT 4.0. | 2 | 3 |
| Deploy service packs. | 12 | 1 |
| Troubleshoot failed installations. | 2 | 4 |

Installing, Configuring, and Troubleshooting Access to Resources

| Skills Being Measured | Location in Book | |
|---|------------------|--------|
| | Chapter | Lesson |
| Install and configure network services for interoperability. | 14 | 1-4 |
| | 9 | 3-5 |
| Monitor, configure, troubleshoot, and control access to printers. | 8 | 2-5 |

| Skills Being Measured | Location in Book | |
|---|------------------|--------|
| | Chapter | Lesson |
| Monitor, configure, troubleshoot, and control access to files, folders, and shared folders. | 4 | 1–4 |
| | 5 | 1–2 |
| | 14 | 1–2 |
| Configure, manage, and troubleshoot a stand-alone Distributed file system (Dfs). | 5 | 1 |
| Configure, manage, and troubleshoot a domain-based Distributed file system (Dfs). | 5 | 1 |
| | 6 | 3 |
| Monitor, configure, troubleshoot, and control local security on files and folders. | 4 | 4 |
| Monitor, configure, troubleshoot, and control access to files and folders in a shared folder. | 4 | 4 |
| Monitor, configure, troubleshoot, and control access to files and folders via Web services. | 14 | 1–2 |
| Monitor, configure, troubleshoot, and control access to Web sites. | 14 | 1–2 |

Configuring and Troubleshooting Hardware Devices and Drivers

| Skills Being Measured | Location in Book | |
|--------------------------------------|------------------|--------|
| | Chapter | Lesson |
| Configure hardware devices. | 12 | 1 |
| Configure driver signing options. | 12 | 1 |
| Update device drivers. | 12 | 1 |
| Troubleshoot problems with hardware. | 12 | 1 |

Managing, Monitoring, and Optimizing System Performance, Reliability, and Availability

| Skills Being Measured | Location in Book | |
|--|-------------------------|---------------|
| | Chapter | Lesson |
| Monitor and optimize usage of system resources. | 13 | 2–5 |
| Manage processes. | 13 | 5 |
| ▪ Set priorities, and start and stop processes. | 13 | 5 |
| Optimize disk performance. | 13 | 1 |
| Manage and optimize availability of system state data and user data. | 12 | 1–4 |
| Recover systems and user data. | 12 | 2, 4 |
| ▪ Recover systems and user data by using Windows Backup. | 12 | 2, 4 |
| ▪ Troubleshoot system restoration by using Safe Mode. | 12 | 4 |
| ▪ Recover systems and user data by using the Recovery Console. | 12 | 4 |

Managing, Configuring, and Troubleshooting Storage Use

| Skills Being Measured | Location in Book | |
|---|-------------------------|---------------|
| | Chapter | Lesson |
| Configure and manage user profiles. | 7 | 2 |
| Monitor, configure, and troubleshoot disks and volumes. | 12 | 3 |
| | 13 | 1 |
| Configure data compression. | 13 | 1 |
| Monitor and configure disk quotas. | 13 | 1 |
| Recover from disk failures. | 12 | 4 |

Configuring and Troubleshooting Windows 2000 Network Connections

| Skills Being Measured | Location in Book | |
|---|------------------|--------|
| | Chapter | Lesson |
| Install, configure, and troubleshoot shared access. | 4 | 4 |
| Install, configure, and troubleshoot a virtual private network (VPN). | 10 | 4 |
| Install, configure, and troubleshoot network protocols. | 9 | 1, 2 |
| Install and configure network services. | 9 | 3–5 |
| | 13 | 4 |
| Configure, monitor, and troubleshoot remote access. | 10 | 1–3, 5 |
| ▪ Configure inbound connections. | 10 | 1–3 |
| ▪ Create a remote access policy. | 10 | 3 |
| ▪ Configure a remote access profile. | 10 | 1–3 |
| Install, configure, monitor, and troubleshoot Terminal Services. | 14 | 4 |
| ▪ Remotely administer servers by using Terminal Services. | 14 | 4 |
| ▪ Configure Terminal Services for application sharing. | 14 | 4 |
| ▪ Configure applications for use with Terminal Services. | 14 | 4 |
| Configure the properties of a connection. | 2 | 2 |
| | 9 | 2–5 |
| | 10 | 3, 4 |
| Install, configure, and troubleshoot network adapters and drivers. | 2 | 1, 2 |
| | 9 | 2 |
| | 12 | 1 |

Implementing, Monitoring, and Troubleshooting Security

| Skills Being Measured | Location in Book | |
|---|------------------|--------|
| | Chapter | Lesson |
| Encrypt data on a hard disk by using Encrypting File System (EFS). | 11 | 2 |
| Implement, configure, manage, and troubleshoot policies in a Windows 2000 environment. | 7 | 4 |
| <ul style="list-style-type: none"> ▪ Implement, configure, manage, and troubleshoot Local Policy in a Windows 2000 environment. | 7 | 4 |
| <ul style="list-style-type: none"> ▪ Implement, configure, manage, and troubleshoot System Policy in a Windows 2000 environment. | 7 | 4 |
| Implement, configure, manage, and troubleshoot auditing. | 11 | 5 |
| Implement, configure, manage, and troubleshoot local accounts. | 7 | 2 |
| Implement, configure, manage, and troubleshoot Account Policy. | 7 | 2, 4 |
| Implement, configure, manage, and troubleshoot security by using the Security Configuration Tool Set. | 11 | 4 |

Getting Started

This self-paced training course contains hands-on procedures to help you learn about Windows 2000 Server.

To complete some of these procedures, you must have two networked computers or be connected to a larger network. Ideally, the network used for the exercises in this kit should not be an isolated network. Both computers must be capable of running Windows 2000 Server.

Caution Several exercises may require you to make changes to your servers. This may have undesirable results if you are connected to a larger network. Check with your network administrator before attempting these exercises.
