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Microsoft
Windows® 2000
活动目录服务 （影印版）

Self-Paced MCSE
Training Kit
Microsoft®
Windows® 2000
Active Directory™
Services

■ MCP 70-217 考试微软指定教材，系统讲解 Microsoft Windows 2000 目录服务基础结构的实现和管理
■ 结合本书提供的实际技能练习题，合理安排自己的学习计划
■ 熟练掌握认证考试目标中涉及的概念、过程和任务，培养实际系统支持技能

Microsoft® Certified
Professional

**MCSE
Study Guide for
Exam
70-217**

IT Professional

Microsoft 公司 著

Microsoft Windows 2000
活动目录服务

Microsoft 公司　著

北京大学出版社

内 容 简 介

本书是《微软指定 MCSE 教材（影印版）》丛书之一，面向 MCP 70-217 认证考试，讲述 Windows 2000 活动目录服务及其实现和管理，内容包括活动目录基础结构的规划和配置、DNS、Group Policy、远程安装服务、网络资源的集中管理、安全性和故障排除、性能监视等。

本书由 Microsoft 公司组织专家编写，具有极高的技术权威性和参考价值，适合作为中、高级系统管理人员的技术参考书和 MCSE 考试的专用教材。

出 版 前 言

如果用一个成语来概括国内计算机图书市场的现状，当谓之"汗牛充栋"。然而，如果您是一位从事计算机应用系统开发或管理的中、高级专业人士，很可能发现这貌似种类齐全的计算机图书中，为您量身定做的并不多见。

依据多年从事计算机图书工作所积累的经验，以及与 IT 领域广泛而深入的接触所获取的信息，我们认识到，具有相当的专业深度和技术前沿性的图书，是计算机专业人员的迫切需要，当然，也是我们从事计算机图书工作、服务专业领域的一大着眼点。

基于这一点，2000 年元月，我们与微软出版社(Microsoft Press)达成合作协议，成立微软图书影印中心，独家代理微软出版社图书影印版在中国大陆的出版、发行，为 IT 业界提供及时的专业技术服务。选题和策划上的匠心独运，使得我们的影印书成为计算机图书中的标新立异者。这里，有四大特色值得读者朋友予以关注：

首先，这是微软出版社第一次授权在中国大陆影印、发行它的版权书。在选题上，可以说独辟蹊径。在内容上，立足技术广度和深度，系统推介微软产品。所有这些，都是目前国内一般计算机图书所无法比拟的。

其次，我们的理念是为国内计算机专业人员学习前沿性的微软技术提供服务。为此，我们不但与微软公司紧密协作与沟通，及时掌握微软最新技术动向，而且组织了精干的工作人员，倾力于微软影印书的出版和发行。

再者，微软影印书主要面向中、高级专业人员，印量有限。这类书的读者对象有较强的针对性，一般来说，包括 IT 决策人员，中、高级开发人员，以及中、高级系统管理人员。因而，我们将每套书的印数控制在 1000~2000 册之间。

最后，微软图书影印版几乎与原版书保持同步发行，最大限度地满足了国内读者跟踪微软最新技术的需求。软件升级越来越快，新软件令人目不暇接。作为技术载体之一的图书，只有迅速作出反应，把新软件介绍给读者，才能赢得他们的青睐。总之，兵贵神速，这是我们的目标。

正应验了前人的预言，21 世纪是一个信息时代。软件作为信息系统的神经，在我们生活的这个时代里发挥着举足轻重的作用，而微软公司和它推出的各种软件，更是令世人为之瞩目。我们将立足图书，继续并扩大与微软公司的合作，在中国信息产业的发展道路上留下自己的足迹。

出版者
2000 年 10 月

About This Book

Welcome to the *MCSE Training Kit—Microsoft Windows 2000 Active Directory Services*. This kit prepares you to install, configure, administer, monitor, and troubleshoot Microsoft Windows 2000 Active Directory.

This kit introduces you to Windows 2000 Active Directory and prepares you to plan, configure, and administer your Active Directory infrastructure. You will learn to configure Domain Name System (DNS) to manage name resolution, schema, and replication. You will also learn to use Active Directory to centrally manage users, groups, shared folders, and network resources, and to administer the user environment and software with group policy. This kit shows you how to implement and troubleshoot security in a directory services infrastructure and monitor and optimize Active Directory performance. You also learn to deploy Windows 2000 remotely using Remote Installation Services (RIS).

This course supports the Microsoft Certified Systems Engineer program.

Note For more information on becoming a Microsoft Certified Systems Engineer, see the section of this chapter titled "The Microsoft Certified Professional Program."

Each chapter in this book is divided into lessons. Most 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 through this section thoroughly before you start the lessons.

Intended Audience

This book has been developed for information system (IS) professionals who need to install, configure, administer, monitor, and troubleshoot Microsoft Windows 2000 Active Directory, or who plan to take the related Microsoft Certified Professional exam 70-217, *Implementing and Administering a Microsoft Windows 2000 Directory Services Infrastructure*.

Prerequisites

This course requires that students meet the following prerequisites:

- A knowledge of the fundamentals of current networking technology is required.
- Successful completion of the *MCSE Training Kit—Microsoft Windows 2000 Server* is recommended.

Reference Materials

You might find the following reference materials useful:

- Windows 2000 white papers and case studies, available online at *http:// www.microsoft.com/windows/server/*
- Windows 2000 Server Help, available on the Start Menu when Windows 2000 Server is installed
- Windows 2000 Support Tools Help, available on the Start, Programs, Windows 2000 Support Tools Menu when Windows 2000 Support Tools are installed
- Windows 2000 Server Resource Kit, in print format or on CD-ROM

Features of This Book

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

▶ Each chapter is divided into lessons. Whenever possible, the lessons contain practices that give you an opportunity to use the skills being presented or to explore the part of the application being described. These practices are placed at the end of lessons and consist of one or more exercises containing procedures. Each procedure is marked with a bullet symbol like the one to the left of this paragraph.

Important The additional procedures that are not included within the practice sections are intended as general information to advance your knowledge of Windows 2000 Active Directory. Because many of the practices build on procedures you do in earlier practices, if you work through the additional procedures in the general text of the book you may alter the state of your test machine and may not be able to carry out subsequent practices exactly as they are presented.

The "Review" section at the end of the 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 **Note** contain supplemental information.
- Notes marked **Important** contain information that is essential to completing a task.
- Notes marked **Caution** contain warnings about possible loss of data.
- Notes marked **Tip** contain explanations of possible results or alternative methods.

Conventions

The following conventions are used throughout this book.

Notational Conventions

- Characters or commands that you type appear in **bold lowercase** type.
- *Italic* in syntax statements indicates placeholders for variable information. *Italic* is also used for book titles.

- Names of files 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 filename in a dialog box or at a command prompt.

- Filename 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.

- Square 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.

- Braces { } are used in syntax statements to enclose required items. Type only the information within the braces, not the braces themselves.

- Icons represent specific sections in the book as follows:

Icon	Represents
	A hands-on practice. You should perform the practice to give yourself an opportunity to use the skills being 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 section 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 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 notes, hands-on procedures, and review questions to teach you how to install, configure, administer, monitor, and troubleshoot Windows 2000 Active Directory. 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.

- Chapter 1, "Introduction to Microsoft Windows 2000," introduces Windows 2000. It includes overviews of the Windows 2000 operating system, Windows 2000 architecture, and Windows 2000 Directory Services.

- Chapter 2, "Introduction to Active Directory," introduces you to Active Directory components, including objects, domains, organizational units (OUs), trees, and forests. It also introduces you to Active Directory concepts, including the global catalog, replication, trust relationships, DNS namespaces, and naming conventions.

- Chapter 3, "Active Directory Administration Tasks and Tools," introduces you to the primary Active Directory administration tasks, including configuring Active Directory, administering users and groups, securing network resources, administering the desktop computing environment, auditing resources and events, and monitoring resources and events. It also introduces you to the Active Directory administration tools, including Microsoft Management Consoles (MMCs) and the Task Scheduler.

- Chapter 4, "Implementing Active Directory," walks you through the steps of implementing Active Directory, including planning, installation, determining operations master roles, and implementing an OU structure.

- Chapter 5, "DNS and Active Directory Integration," introduces you to DNS name resolution and zones. It also provides practice in configuring zones and discusses zone replication and transfer. The chapter concludes with information on troubleshooting an Active Directory DNS configuration.

- Chapter 6, "Configuring Sites," shows you how to configure site settings and inter-site replication. It provides troubleshooting information for problems you may encounter that relate to inter-site replication. This chapter also discusses the tasks necessary for configuring server settings.

- Chapter 7, "User Account Administration," introduces you to user accounts and how to plan them. You learn the procedures for creating domain and local user accounts and setting their properties, as well as for setting up user profiles and home directories. This chapter also covers user account maintenance, including disabling, enabling, renaming, deleting, and unlocking user accounts and resetting user passwords.

- Chapter 8, "Group Account Administration," provides you with a group planning strategy and procedures for creating groups. You learn about the default groups provided by Microsoft Windows 2000 and the groups to which administrators should be assigned.

- Chapter 9, "Securing Network Resources," introduces you to Microsoft Windows 2000 file system (NTFS) folder and file permissions. You learn how to assign NTFS folder and file permissions to user accounts and groups and how moving or copying files and folders affects NTFS file and folder permissions. The chapter concludes with information on troubleshooting common resource access problems.

- Chapter 10, "Administering Shared Folders," introduces you to shared folders and to how to plan them. You learn the procedures for sharing folder resources, securing them with permissions, and providing access to them. The chapter concludes with information on setting up the Microsoft distributed file system (Dfs) to provide users with convenient access to shared folders that are distributed throughout a network.

- Chapter 11, "Administering Active Directory," provides instruction on Active Directory administration tasks, including locating objects, assigning permissions to objects, publishing resources, moving objects within and between domains, delegating administrative control to OUs, backing up and restoring, and troubleshooting Active Directory.

- Chapter 12, "Administering Group Policy," introduces you to group policy concepts and implementation planning. You learn the procedures for implementing group policy. You also learn how to manage software and special folders using group policy. The chapter concludes with information on troubleshooting common group policy problems.

- Chapter 13, "Administering a Security Configuration," discusses the use of security settings to determine a system's security configuration, including auditing, using security logs, user rights, using security templates, and the Security Configuration and Analysis tool. The chapter concludes with information on troubleshooting a security configuration.

- Chapter 14, "Managing Active Directory Performance," provides details on the performance monitoring tools, support tools, and shared folder monitoring tools available to help you to manage Active Directory performance.

- Chapter 15, "Deploying Windows 2000 Using RIS," introduces you to RIS. Procedures walk you through the steps for implementing and administering RIS. The chapter concludes with answers to frequently asked RIS questions and information on troubleshooting RIS problems.

- Appendix A, "Questions and Answers," lists all of the practice and review questions from the book, showing suggested answers.

- Appendix B, "Installing and Configuring the DHCP Service," contains basic instructions for installing and configuring the Dynamic Host Configuration Protocol (DHCP) service in preparation for the use of RIS.

- The Glossary lists and defines the terms associated with your study of Windows 2000 Active Directory.

Finding the Best Starting Point for You

Because this book is self-paced, you can skip some lessons and revisit them later. But note that you must complete the setup instructions in this chapter before you can perform procedures in the other 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 70-217, Implementing and Administering a Microsoft Windows 2000 Directory Services Infrastructure	Read the "Getting Started" section and follow the setup procedure in the "Setup Instructions" section. Then work through Chapters 1 through 15, in order.
Want to review 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 70-217, *Implementing and Administering a Microsoft Windows 2000 Directory Services Infrastructure*. The table provides the skill and where in this book you will find the lesson relating to that skill.

Note   Exam skills are subject to change without prior notice and at the sole discretion of Microsoft.

Installing, Configuring, and Troubleshooting Active Directory

Skill Being Measured	Location in Book
Install, Configure, and Troubleshoot the Components of Active Directory	
Install Active Directory	Chapter 4, Lesson 2
Create sites	Chapter 6, Lesson 1
Create subnets	Chapter 6, Lesson 1
Create site links	Chapter 6, Lesson 1
Create site link bridges	Chapter 6, Lesson 2
Create connection objects	Chapter 6, Lesson 2
Install, Configure, and Troubleshoot the Components of Active Directory	
Create global catalog servers	Chapter 6, Lesson 4
Move server objects between sites	Chapter 6, Lesson 4
Transfer Operations Master roles	Chapter 4, Lesson 3
Verify Active Directory installation	Chapter 4, Lesson 2
Implement an OU structure	Chapter 4, Lesson 4
Back Up and Restore Active Directory	
Perform an authoritative restore of Active Directory	Chapter 11, Lesson 6
Recover from a system failure	Chapter 11, Lesson 7

Installing, Configuring, Managing, Monitoring, and Troubleshooting DNS for Active Directory

Skill Being Measured	Location in Book
Install, Configure, and Troubleshoot DNS for Active Directory	
Integrate an Active Directory DNS with a non-Active Directory DNS	Chapter 5, Lessons 2 and 4
Configure zones for dynamic updates	Chapter 5, Lessons 2 and 4
Manage, Monitor, and Troubleshoot DNS	
Manage replication of DNS data	Chapter 5, Lessons 3 and 4

Installing, Configuring, Managing, Monitoring, Optimizing, and Troubleshooting Change and Configuration Management

Skill Being Measured	Location in Book
Implement and Troubleshoot Group Policy	
Create a group policy object (GPO)	Chapter 12, Lessons 3 and 6
Link an existing GPO	Chapter 12, Lessons 3 and 6
Delegate administrative control of group policy	Chapter 12, Lessons 3 and 6
Modify group policy inheritance	Chapter 12, Lessons 3 and 6
Filter group policy settings by associating security groups to GPOs	Chapter 12, Lessons 3 and 6
Modify group policy	Chapter 12, Lessons 3 and 6
Manage and Troubleshoot User Environments by Using Group Policy	
Control user environments by using Administrative Templates	Chapter 12, Lessons 3 and 6
Assign script policies to users and computers	Chapter 12, Lessons 3 and 6
Manage and Troubleshoot Software by Using Group Policy	
Deploy software by using group policy	Chapter 12, Lesson 4
Maintain software by using group policy	Chapter 12, Lesson 4
Configure deployment options	Chapter 12, Lesson 4
Troubleshoot common problems that occur during software deployment	Chapter 12, Lesson 6
Manage Network Configuration by Using Group Policy	Chapter 12, Lesson 5
Deploy Windows 2000 by Using RIS	
Install an image on an RIS client computer	Chapter 15, Lesson 2
Create an RIS boot disk	Chapter 15, Lesson 2
Configure remote installation options	Chapter 15, Lesson 2
Troubleshoot RIS problems	Chapter 15, Lesson 4
Manage images for performing remote installations	Chapter 15, Lesson 3
Configure RIS Security	
Authorize an RIS server	Chapter 15, Lesson 3
Grant computer account creation rights	Chapter 15, Lesson 3
Prestage RIS client computers for added security and load balancing	Chapter 15, Lesson 3

Managing, Monitoring, and Optimizing the Components of Active Directory

Skill Being Measured	Location in Book
Manage Active Directory Objects	
Move Active Directory objects	Chapter 11, Lesson 4
Publish resources in Active Directory	Chapter 11, Lesson 3
Locate objects in Active Directory	Chapter 11, Lesson 1
Create and manage accounts manually or by scripting	Chapter 7, Lessons 3, 4, and 5 Chapter 8, Lessons 3, 4, and 5
Control access to Active Directory objects	Chapter 11, Lesson 2
Delegate administrative control of objects in Active Directory	Chapter 11, Lesson 5
Manage Active Directory Performance	
Monitor, maintain, and troubleshoot domain controller performance	Chapter 14, Lessons 1, 2, and 3
Monitor, maintain, and troubleshoot Active Directory components	Chapter 14, Lessons 1, 2, and 3
Manage and Troubleshoot Active Directory Replication	
Manage inter-site replication	Chapter 6, Lessons 1, 2, and 3
Manage intra-site replication	Chapter 6, Lessons 1 and 3

Configuring, Managing, Monitoring, and Troubleshooting Active Directory Security Solutions

Skill Being Measured	Location in Book
Configure and Troubleshoot Security in a Directory Services Infrastructure	
Apply security policies by using group policy	Chapter 13, Lessons 1, 3, 4, and 7
Create, analyze, and modify security configurations by using Security Configuration and Analysis and Security Templates	Chapter 13, Lessons 5, 6, and 7
Implement an audit policy	Chapter 13, Lessons 2 and 7
Monitor and Analyze Security Events	Chapter 13, Lesson 3

Getting Started

This self-paced training course contains hands-on procedures to help you learn about Windows 2000 Active Directory. To complete these procedures, you must have the following:

- One computer running Windows 2000 Server

There are a few optional practices and exercises in this book that require two computers. Using a second computer is optional; it is not required to meet the lesson objectives. If you have only one computer, read through the steps and familiarize yourself with the procedure as best you can.

It is recommended that you set up the server on its own network specifically for this self-paced training because, to complete the lessons in this book, you will need to set up a domain controller and make changes to the domain controller that can affect other network users. However, you can use a domain controller on an existing network.

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.

Hardware Requirements

Each computer must have the following minimum configuration. All hardware should be on the Microsoft Windows 2000 Hardware Compatibility List (HCL). The latest version of the HCL can be downloaded from the Hardware Compatibility List Web page at *http://www.microsoft.com/hwtest/hcl/*.

- 32-bit 166MHz Pentium processor
- 64 MB memory for networking with one to five client computers; 128 MB minimum is recommended for most network environments
- 2 GB hard disk
- 12X or faster CD-ROM drive
- SVGA monitor capable of 800 × 600 resolution (1024 × 768 recommended)
- High-density 3.5-inch disk drive, unless your CD-ROM is bootable and supports starting the setup program from a CD-ROM
- Microsoft Mouse or compatible pointing device
- Software Requirements

The following software is required to complete the procedures in this course.

- A copy of the Windows 2000 Server installation CD-ROM
- You can check the Microsoft.com Web site for the availability of a downloadable, evaluation copy of the Windows 2000 Server software at the following address:

  http://microsoft.com/windows2000/default.asp

  Directions on how to download this evaluation version of the software for free will be found at that site.

Setup Procedures

The following information is a checklist of the tasks that you need to perform to prepare your computer for the lessons in this book. If you do not have experience installing Windows 2000 or another network operating system, you may need help from an experienced network administrator. As you complete a task, mark it off in the check box. Step-by-step instructions for each task follow.

- ☐ Create Windows 2000 Server setup diskettes
- ☐ Run the Windows 2000 Server Pre-Copy and Text Mode Setup Routine
- ☐ Run the GUI mode and gathering information phase of Windows 2000 Server Setup
- ☐ Complete the Installing Windows Networking Components phase of Windows 2000 Server Setup
- ☐ Complete the hardware installation phase of Windows 2000 Server Setup

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Note The installation information provided will help you prepare a computer for use with this book. It is not intended to teach you installation. For comprehensive information on installing Windows 2000 Server, see the *MCSE Training Kit—Microsoft Windows 2000 Server*, also available from Microsoft Press.

Installing Windows 2000 Server

To complete the exercises in this course, you should install Windows 2000 Server on a computer with no formatted partitions. During installation, you can use the Windows 2000 Server Setup program to create a partition on your hard disk, on which you install Windows 2000 Server as a stand-alone server in a workgroup.

▶ **To create Windows 2000 Server Setup Diskettes**

- Complete this procedure on a computer running MS-DOS or any version of Windows with access to the Bootdisk directory on the Windows 2000 Server installation CD-ROM. If your computer is configured with a bootable CD-ROM drive, you can install Windows 2000 without using the Setup disks. To complete this exercise as outlined, bootable CD-ROM support must be disabled in the BIOS.

Important   This procedure requires four formatted 1.44-MB disks. If you use diskettes that contain data, the data will be overwritten without warning.

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1. Label the four blank, formatted 1.44-MB diskettes as follows:
   - Windows 2000 Server Setup Disk #1
   - Windows 2000 Server Setup Disk #2
   - Windows 2000 Server Setup Disk #3
   - Windows 2000 Server Setup Disk #4
2. Insert the Microsoft Windows 2000 Server CD-ROM into the CD-ROM drive.
3. If the Windows 2000 CD-ROM dialog box appears prompting you to install or upgrade to Windows 2000, click No.
4. Open a command prompt.
5. At the command prompt, change to your CD-ROM drive. For example, if your CD-ROM drive name is E, type **e:** and press Enter.
6. At the command prompt, change to the Bootdisk directory by typing **cd bootdisk** and pressing Enter.
7. If you are creating the setup boot diskettes from a computer running MS-DOS, a Windows 16-bit operating system, Windows 95, or Windows 98, type **makeboot a:** (where A: is the name of your floppy disk drive), then press Enter. If you are creating the setup boot diskettes from a computer running Windows NT or Windows 2000, type **makebt32 a:** (where A: is the name of your floppy disk drive), then press Enter. Windows 2000 displays a message indicating that this program creates the four setup disks for installing Windows 2000. It also indicates that four blank, formatted, high-density floppy disks are required.
8. Press any key to continue. Windows 2000 displays a message prompting you to insert the disk that will become the Windows 2000 Setup Boot Disk.