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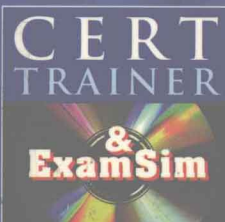
# MCSE

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## Designing Windows® 2000 Directory Services *STUDY GUIDE* (EXAM 70-219)

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# MCSE Designing Windows 2000 Directory Services Study Guide

## (Exam 70-219)

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# **MCSE Designing Windows 2000 Directory Services Study Guide**

**(Exam 70-219)**

## FOREWORD

### From Global Knowledge

At Global Knowledge we strive to support the multiplicity of learning styles required by our students to achieve success as technical professionals. In this series of books, it is our intention to offer the reader a valuable tool for successful completion of the MCSE Windows 2000 Certification exams.

As the world's largest IT training company, Global Knowledge is uniquely positioned to offer these books. The expertise gained each year from providing instructor-led training to hundreds of thousands of students worldwide has been captured in book form to enhance your learning experience. We hope that the quality of these books demonstrates our commitment to your lifelong learning success. Whether you choose to learn through the written word, computer-based training, Web delivery, or instructor-led training, Global Knowledge is committed to providing you with the very best in each of those categories. For those of you who know Global Knowledge, or those of you who have just found us for the first time, our goal is to be your lifelong competency partner.

Thank you for the opportunity to serve you. We look forward to serving your needs again in the future.

Warmest regards,



Duncan Anderson  
President and Chief Operating Officer, Global Knowledge

## **The Global Knowledge Advantage**

Global Knowledge has a global delivery system for its products and services. The company has 28 subsidiaries, and offers its programs through a total of 60+ locations. No other vendor can provide consistent services across a geographic area this large. Global Knowledge is the largest independent information technology education provider, offering programs on a variety of platforms. This enables our multi-platform and multi-national customers to obtain all of their programs from a single vendor. The company has developed the unique Competus™ Framework software tool and methodology which can quickly reconfigure courseware to the proficiency level of a student on an interactive basis. Combined with self-paced and on-line programs, this technology can reduce the time required for training by prescribing content in only the deficient skills areas. The company has fully automated every aspect of the education process, from registration and follow-up, to “just-in-time” production of courseware. Global Knowledge Network through its Enterprise Services Consultancy, can customize programs and products to suit the needs of an individual customer.

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- Cabling Voice and Data Networks
- Introduction to LAN/WAN protocols
- Virtual Private Networks
- ATM Essentials

## Network Security & Management

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- Network Management
- Network Troubleshooting
- IP Address Management
- Network Security Administration
- Web Security
- Implementing UNIX Security
- Managing Cisco Network Security
- Windows NT 4.0 Security

## IT Professional Skills

- Project Management for IT Professionals
- Advanced Project Management for IT Professionals
- Survival Skills for the New IT Manager
- Making IT Teams Work

## LAN/WAN Internetworking

- Frame Relay Internetworking
- Implementing T1/T3 Services
- Understanding Digital Subscriber Line (xDSL)
- Internetworking with Routers and Switches
- Advanced Routing and Switching
- Multi-Layer Switching and Wire-Speed Routing
- Internetworking with TCP/IP
- ATM Internetworking
- OSPF Design and Configuration
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## Authorized Vendor Training

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- Installation and Maintenance of Cisco Routers
- Cisco Internetwork Troubleshooting
- Cisco Internetwork Design
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- Catalyst 5000 Series Configuration
- Cisco LAN Switch Configuration
- Managing Cisco Switched Internetworks
- Configuring, Monitoring, and Troubleshooting Dial-Up Services
- Cisco AS5200 Installation and Configuration
- Cisco Campus ATM Solutions

### Bay Networks

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- Bay Networks Advanced IP Routing
- Bay Networks Hub Connectivity
- Bay Networks Accelar Ixxx Installation and Basic Configuration
- Bay Networks Centillion Switching

## FORE Systems

- FORE ATM Enterprise Core Products
- FORE ATM Enterprise Edge Products
- FORE ATM Theory
- FORE LAN Certification

## Operating Systems & Programming

### Microsoft

- Introduction to Windows NT
- Microsoft Networking Essentials
- Windows NT 4.0 Workstation
- Windows NT 4.0 Server
- Advanced Windows NT 4.0 Server
- Windows NT Networking with TCP/IP
- Introduction to Microsoft Web Tools
- Windows NT Troubleshooting
- Windows Registry Configuration

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- UNIX Level II
- Essentials of UNIX and NT Integration

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- Web Site Management and Performance
- Web Development Fundamentals

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- Integrating ISDN
- Fiber Optic Network Design
- Fiber Optic Network Installation
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## DIGITAL UNIX

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- DIGITAL UNIX v4.0 (TCP/IP) Network Management
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- DIGITAL UNIX TruCluster Software Configuration and Management
- UNIX Shell Programming Featuring Kornshell
- DIGITAL UNIX v4.0 Security Management
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- DIGITAL UNIX v4.0 Intervals Overview

## DIGITAL OpenVMS

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- OpenVMS System and Network Node Management I
- OpenVMS System and Network Node Management II
- OpenVMS System and Network Node Management III
- OpenVMS System and Network Node Operations
- OpenVMS for Programmers
- OpenVMS System Troubleshooting for Systems Managers
- Configuring and Managing Complex VMScluster Systems
- Utilizing OpenVMS Features from C
- OpenVMS Performance Management
- Managing DEC TCP/IP Services for OpenVMS
- Programming in C

## Hardware Courses

- AlphaServer 1000/1000A Installation, Configuration and Maintenance
- AlphaServer 2100 Server Maintenance
- AlphaServer 4100, Troubleshooting Techniques and Problem Solving

## ABOUT THE CONTRIBUTORS

### About Syngress Media

Syngress Media creates books and software for Information Technology professionals seeking skill enhancement and career advancement. Its products are designed to comply with vendor and industry standard course curricula, and are optimized for certification exam preparation. You can contact Syngress via the Web at [www.syngress.com](http://www.syngress.com).

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## Series Editors

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## PREFACE

**T**his book's primary objective is to help you prepare for the MCSE Designing a Windows 2000 Directory Services Infrastructure exam under the new Windows 2000 certification track. As the Microsoft program transitions from Windows NT 4.0, it will become increasingly important that current and aspiring IT professionals have multiple resources available to assist them in increasing their knowledge and building their skills.

At the time of publication, all the exam objectives have been posted on the Microsoft web site and the beta exam process has been completed. Microsoft has announced its commitment to measuring real-world skills. This book is designed with that premise in mind; its authors have practical experience in the field, using the Windows 2000 operating systems in hands-on situations and have followed the development of the product since early beta versions.

Because the focus of the exams is on application and understanding, as opposed to memorization of facts, no book by itself can fully prepare you to obtain a passing score. It is essential that you work with the software to enhance your proficiency. Toward that end, this book includes many practical step-by-step exercises in each chapter that are designed to give you hands-on practice as well as to guide you in learning Microsoft Windows 2000 Designing Directory Services, not just learning *about* it.

### In This Book

This book is organized in such a way as to serve as an in-depth review for the MCSE Designing a Windows 2000 Directory Services Infrastructure exam for both experienced Windows NT professionals and newcomers to Microsoft networking technologies. Each chapter covers a major aspect of the exam, with an emphasis on the “why” as well as the “how to” of working with and supporting Windows 2000 as a network administrator or engineer.

## On the CD

The CD-ROM contains the CertTrainer software. CertTrainer comes complete with ExamSim, Skill Assessment tests, CertCam movie clips, the e-book (electronic version of the book), and Drive Time. CertTrainer is easy to install on any Windows 98/NT/2000 computer and must be installed to access these features. You may, however, browse the e-book direct from the CD without installation. For more information on the CD-ROM, please see Appendix A.

## In Every Chapter

We've created a set of chapter components that call your attention to important items, reinforce important points, and provide helpful exam-taking hints. Take a look at what you'll find in every chapter:

- **Certification Objectives**—what you need to know in order to pass the section on the exam dealing with the chapter topic. The Objective headings identify the objectives within the chapter, so you'll always know an objective when you see it!
- **Exam Watch** notes call attention to information about, and potential pitfalls in, the exam. These helpful hints are written by authors who have taken the exams and received their certification—who better to tell you what to worry about? They know what you're about to go through!
- **Practice Exercises** are interspersed throughout the chapters. These are step-by-step exercises that allow you to get the hands-on experience you need in order to pass the exams. They help you master skills that are likely to be an area of focus on the exam. Don't just read through the exercises; they are hands-on practice that you should be comfortable completing. Learning by doing is an effective way to increase your competency with a product. The practical exercises will be very helpful for any simulation exercises you may encounter on the MCSE Designing a Windows 2000 Directory Services Infrastructure exam.
- The **CertCam** icon that appears in many of the exercises indicates that the exercise is presented in .avi format on the accompanying CD-ROM. These .avi clips walk you step-by-step through various system configurations and are narrated by Thomas W. Shinder, M.D., MCSE.





- **On The Job** notes describe the issues that come up most often in real-world settings. They provide a valuable perspective on certification- and product-related topics. They point out common mistakes and address questions that have arisen from on the job discussions and experience.
- **From The Classroom** sidebars describe the issues that most often arise in the training classroom setting. These sidebars highlight some of the most common and confusing problems that students encounter when taking a live Windows 2000 training course. You can get a leg up on those difficult-to-understand subjects by focusing extra attention on these sidebars.
- **Scenario & Solution** sections present potential problems and solutions in a quick-to-read format:

## SCENARIO & SOLUTION

Is Active Directory scalable?

Yes! Unlike the Windows NT security database, which is limited to approximately 40,000 objects, Active Directory supports literally millions of objects.

Is Active Directory compatible with other LDAP directory services?

Yes! Active Directory can share information with other directory services that support LDAP versions 2 and 3, such as Novell's NDS.

- The **Certification Summary** is a succinct review of the chapter and a restatement of salient points regarding the exam.
- ✓ ■ The **Two-Minute Drill** at the end of every chapter is a checklist of the main points of the chapter. It can be used for last-minute review.

### Q&A

- The **Self Test** offers questions similar to those found on the certification exams. The answers to these questions, as well as explanations of the answers, can be found at the end of each chapter. By taking the Self Test after completing each chapter, you'll reinforce what you've just learned while becoming familiar with the structure of the exam questions.
- The **Lab Question** at the end of the Self Test section offers a unique and challenging question format that requires the reader to understand multiple chapter concepts to answer correctly. These questions are more complex and



comprehensive than the other questions, as they test your ability to take all the knowledge you have gained from reading the chapter and apply it to complicated, real-world situations. These questions are aimed to be more difficult than what you will find on the exam. If you can answer these questions, you have proven that you know the subject!

## The Global Knowledge Web Site

*Check out the web site.* Global Knowledge invites you to become an active member of the Access Global Web site. This site is an online mall and information repository that you'll find invaluable. You can access many types of products to assist you in your preparation for the exams, and you'll be able to participate in forums, online discussions, and threaded discussions. No other book brings you unlimited access to such a resource. You'll find more information about this site in Appendix B.

## Some Pointers

Once you've finished reading this book, set aside some time for a thorough review. You might want to return to the book several times and make use of all the methods it offers for reviewing the material:

1. *Re-read all the Two-Minute Drills*, or have someone quiz you. You also can use the drills as a way to do a quick cram before the exam. You might want to make some flash cards out of 3 x 5 index cards that have the Two-Minute Drill material on them.
2. *Re-read all the Exam Watch notes*. Remember that these notes are written by authors who have taken the exam and passed. They know what you should expect—and what you should be on the lookout for.
3. *Review all the S&S sections* for quick problem solving.
4. *Re-take the Self Tests*. Taking the tests right after you've read the chapter is a good idea, because the questions help reinforce what you've just learned. However, it's an even better idea to go back later and do all the questions in the book in one sitting. Pretend that you're taking the live exam. (When you go through the questions the first time, you should mark your answers on a separate piece of paper. That way, you can run through the questions as many times as you need to until you feel comfortable with the material.)