MCSE: Windows 2000 Network Infrastructure Administration
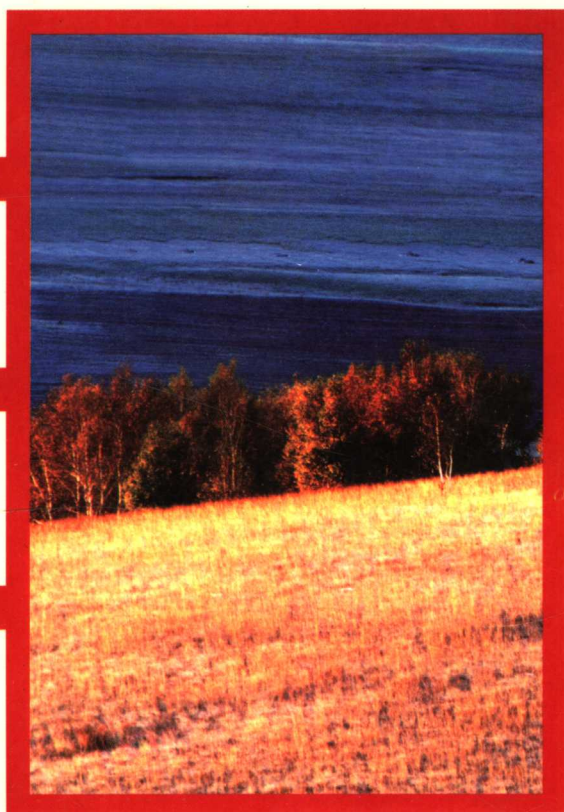
考试指南

（英文原版）

考试号 70-216

John William Jenkins, Jr.
〔美〕　Pual Robichaux　著
James Chellis

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Windows 2000 MCSE系列丛书出版说明

近几年来，微软的认证考试已成为计算机与网络行业中衡量技术人员水平的重要考试，得到微软的认证证书已成为IT业求职、加薪的有效证明。

随着微软Windows 2000操作系统的推出，微软在MCP（Microsoft Certified Professional，微软认证的专业人员）和MCSE（Microsoft Certified System Engineer，微软认证的系统工程师）认证策略上做了重大调整，考试的难度增加，使微软证书的"含金量"进一步提高。

新的Windows 2000微软系统工程师（MCSE）已经成为IT从业人员追求的新热点。在未来的几年中，世界各地将有数以百万计的企业使用Windows 2000操作系统，这将需要大量的咨询、服务公司和技术支持人员。得到Windows 2000的MCSE证书，将会证明你有能力设计、维护、管理最新的网络操作系统。一个公司具有多少持有MCSE证书的人员，也是衡量该公司技术实力的一项重要指标。

为帮助国内的技术人员掌握微软的新技术，顺利通过新的MCSE认证考试，我们在出版了针对Windows NT 4.0的MCSE考试用书的基础之上，再次出版了针对Windows 2000的MCSE学习指南（中文译本）和MCSE考试指南（英文原版）。

新的MCSE考试科目

Windows 2000的MCSE考试科目较以前NT 4.0的考试有很大变化，以前的考试科目只有6门，其中4门必考，2门选考。新的MCSE考试科目有7门，包括4门必考的核心考试、1门可选的核心考试、2门自选考试。具体情况见表0.1。

表0.1 Windows 2000 MCSE考试科目

考试号	科目	内容
四门必考的核心考试:		
70-210	Installing, Configuring and Administering Microsoft Windows 2000 Professional	Microsoft Windows 2000 Professional的安装配置与管理
70-215	Installing, Configuring and Administering Microsoft Windows 2000 Server	Microsoft Windows 2000 Server的安装配置与管理
70-216	Implementing and Administering a Microsoft Windows 2000 Network Infrastructure	Microsoft Windows 2000 网络架构的实施与管理
70-217	Implementing and Administering a Microsoft Windows 2000 Directory Services Infrastructure	微软Microsoft Windows 2000目录服务架构的实施与管理

考试号	科目	内容
一门可选的核心考试（从三门核心考试中任选一门）：		
70-219	Designing a Microsoft Windows 2000 Directory Services Infrastructure	设计Microsoft Windows 2000 目录服务基础架构
70-220	Designing Security for a Microsoft Windows 2000 Network	设计Microsoft Windows 2000 网络安全方案
70-221	Designing a Microsoft Windows 2000 Network Infrastructure	设计Microsoft Windows 2000 网络基础架构
二门任选考试：		
可以从70-219、70-220、70-221三门中未作为核心考试的科目中选，还可以选70-222以及所有当前的MCSE选修课程。		
70-222	Upgrading from Microsoft Windows NT 4.0 to Microsoft Windows 2000	从NT 4升级到Windows 2000

对于已取得Windows NT 4.0 MCSE或MCP的人员，微软提供了相应的"升级"考试。如果考生已通过三门Windows NT 4.0考试（70-067、70-068和70-073），可以选择参加"升级"考试（70-240：Microsoft Windows 2000 Accelerated Exam for MCPs Certified on Microsoft Windows NT 4.0，即微软为已通过Windows NT 4.0的MCP提供的升级到Windows 2000的加速考试）。如果通过70-240考试，可以免考Windows 2000核心考试（70-210、70-215、70-216和70-217），但70-240的考试有效期为2001年12月30日。

Windows 2000 MCSE考试指南

为帮助国内考生攻克Windows 2000 MCSE考试，我们再次以英文原版的方式出版了Windows 2000 MCSE考试指南系列丛书，见表0.2。

表0.2 Windows 2000 MCSE考试指南系列

书名	适应的考试	考试号
MCSE：Windows 2000 Professional考试指南	Installing, Configuring and Administering Microsoft Windows 2000 Professional	70-210
MCSE：Windows 2000 Server考试指南	Installing, Configuring and Administering Microsoft Windows 2000 Server	70-215
MCSE：Windows 2000 Network Infrastructure Administration考试指南	Implementing and Administering a Microsoft Windows 2000 Network Infrastructure	70-216
MCSE：Windows 2000 Directory Services Administration考试指南	Implementing and Administering a Microsoft Windows 2000 Directory Services Infrastructure	70-217
MCSE：Accelerated Windows 2000考试指南	Microsoft Windows 2000 Accelerated for MCPs Certified on Microsoft Windows NT 4.0	70-240

书名	适应的考试	考试号
MCSE：Windows 2000 Directory Services Design考试指南	Designing a Microsoft Windows 2000 Directory Services Infrastructure	70-219
MCSE：Windows 2000 Network Security Design考试指南	Designing Security for a Microsoft Windows 2000 Network	70-220
MCSE：Windows 2000 Network Infrastructure Design考试指南	Designing a Microsoft Windows 2000 Network Infrastructure	70-221
MCSE：Windows 2000 Upgrade考试指南（将于2001年1月出版）	Upgrading from Microsoft Windows NT 4.0 to Microsoft Windows 2000	70-222

Windows 2000 MCSE学习指南

为使考生能全面、牢固地掌握MCSE各门课程内容，我们引进、翻译了MCSE的学习指南系列丛书。这套书的特点是注重原理介绍、概念阐述清晰，使读者能全面掌握所学知识，并可灵活地运用到实践中。这套书将于2000年12月相继出版，见表0.3。

表0.3　Windows 2000 MCSE学习指南系列

书名	适应的考试	考试号
MCSE：Windows 2000 Professional学习指南	Installing, Configuring and Administering Microsoft Windows 2000 Professional	70-210
MCSE：Windows 2000 Server学习指南	Installing, Configuring and Administering Microsoft Windows 2000 Server	70-215
MCSE：Windows 2000 Network Infrastructure Administration学习指南	Implementing and Administering a Microsoft Windows 2000 Network Infrastructure	70-216
MCSE：Windows 2000 Directory Services Administration学习指南	Implementing and Administering a Microsoft Windows 2000 Directory Services Infrastructure	70-217
MCSE：Accelerated Windows 2000学习指南	Microsoft Windows 2000 Accelerated for MCPs Certified on Microsoft Windows NT 4.0	70-240
MCSE：Windows 2000 Directory Services Design学习指南	Designing a Microsoft Windows 2000 Directory Services Infrastructure	70-219
MCSE：Windows 2000 Network Security Design学习指南	Designing Security for a Microsoft Windows 2000 Network	70-220
MCSE：Windows 2000 Network Infrastructure Design学习指南	Designing a Microsoft Windows 2000 Network Infrastructure	70-221
MCSE：Windows 2000 Upgrade学习指南	Upgrading from Microsoft Windows NT 4.0 to Microsoft Windows 2000	70-222

This book is dedicated to Kristen Lee Eggertsen,
the Love of my Life.

Acknowledgments

I would like to thank my family: Kristen, Aubrey, and Brooke; John Wm., Sr.; Julia; Jeff; and Jim. I am very grateful for the help and technical assistance from Jamie Chellis, Mathew Peter Bulkeley, Rick Collin, Floyd Patterson, Jared Dixon, Star Place, Ralph Edwards, and Geoff Keochakian. I would like to thank all of the great people at Sybex who helped make this book a reality; they include Neil Edde, Bonnie Bills, Brenda Frink, Kathy Simpson, Donald Fuller, Edith Kaneshiro, Liz Paulus, Jill Niles, Judy Fung, and Liz Burke.

Introduction

M icrosoft's new Microsoft Certified Systems Engineer (MCSE) track for Windows 2000 is the premier certification for computer-industry professionals. Covering the core technologies around which Microsoft's future will be built, the MCSE certification is a powerful credential for career advancement.

This book has been developed, in cooperation with Microsoft Corp., to give you the critical skills and knowledge you need to prepare for one of the core requirements of the new MCSE certification program for Windows 2000 Network Infrastructure Administration. You will find the information you need to acquire a solid understanding of Windows 2000 network infrastructure administration, to prepare for Exam 70-216: Implementing & Administering a Microsoft® Windows® 2000 Network Infrastructure, and to progress toward MCSE certification.

Is This Book for You?

The MCSE Exam Notes books are designed to be succinct, portable exam-review guides that can be used in conjunction with a more complete study program (book, CBT courseware, or classroom/lab environment) or as an exam review for those who donít feel the need for more extensive test preparation. The goal is not to give the answers away, but to identify the topics on which you can expect to be tested and to provide sufficient coverage of these topics.

Perhaps you're already familiar with the features and functionality of Windows 2000. The thought of paying a great deal of money for a specialized MCSE exam-preparation course probably doesn't sound too appealing. What can these courses teach you that you don't already know, right? Be careful, though —many experienced network administrators have walked confidently into test centers, only to walk sheepishly out of them after failing an MCSE exam. As they discovered, there's the Microsoft of the real world and the Microsoft of the MCSE exams. It's our goal in these Exam Notes books to show you where the two converge and where they diverge. When you finish reading this book, you should have a clear idea of how your understanding of the technologies involved matches up with the expectations of the MCSE test makers in Redmond.

Or perhaps you're relatively new to the world of Microsoft networking, drawn to it by the promise of challenging work and higher salaries. You've just waded through an 800-page MCSE Windows 2000 Study Guide or taken a class at a local training center. That's a lot of information to keep track of, isn't it? But by organizing the Exam Notes books according to the Microsoft exam objectives, and by breaking the information into concise, manageable pieces, we've created what we think is the handiest exam- review guide available. Throw it in your briefcase and carry it to work with you. As you read through the book, you'll be able to identify quickly the areas that you know best and those that require more in-depth review.

NOTE The goal of the Exam Notes series is to help MCSE candidates familiarize themselves with the subjects on which they can expect to be tested in the MCSE exams. For complete, in-depth coverage of the technologies and topics involved, we recommend the MCSE Windows 2000 Study Guide series from Sybex.

How Is This Book Organized?

This book is organized according to the official exam-objectives list prepared by Microsoft for the 216 exam. The chapters coincide with the broad objectives groupings, such as Planning, Installation and Configuration, Monitoring and Managing, and Troubleshooting. These groupings also are reflected in the organization of the MCSE exams themselves.

Within each chapter, the individual exam objectives are addressed in turn. The objectives sections are further divided according to the type of information presented.

Critical Information

This section presents the greatest level of detail on information that is relevant to the objective. This is the place to start if you're unfamiliar with or uncertain about the technical issues related to the objective.

Necessary Procedures

Here, you'll find instructions for procedures that must be completed on a lab computer. From installing operating systems to modifying configuration defaults, these sections address the hands-on requirements for the MCSE exam.

NOTE Not every objective has procedures associated with it. For such objectives, the "Necessary Procedures" section has been left out.

Exam Essentials

This section provides a concise list of the most crucial topics that you need to understand fully before taking the MCSE exam. This section can help you identify topics that may require more study on your part.

Key Terms and Concepts

This section is a mini-glossary of the most important terms and concepts related to the specific objective. You'll understand what all those technical words mean within the context of the related subject matter.

Sample Questions

Each objective includes a selection of questions similar to those that you'll encounter on the actual MCSE exam. Answers and explanations are provided so that you can gain some insight into the test-taking process.

How Do You Become an MCSE?

Attaining MCSE certification always has been a challenge. In the past, people could acquire detailed exam information—even most of the exam questions—from online "brain dumps" and third-party "cram" books or software products. For the new MCSE exams, however, this possibility simply will not exist.

To prevent "paper-MCSE syndrome" (a devaluation of the MCSE certification because unqualified people manage to pass the exams), Microsoft has taken strong steps to protect the security and integrity of the new MCSE track. Prospective MCSEs need to complete a course of study that provides not only detailed knowledge of a wide range of topics, but also true skills derived from working with Windows 2000 and related software products.

In the new MCSE program, Microsoft heavily emphasizes hands-on skills. Microsoft has stated, "Nearly half of the core required exams' content demands that the candidate have troubleshooting skills acquired through hands-on experience and working knowledge."

Fortunately, if you are willing to dedicate time and effort to Windows 2000, you can prepare for the exams by using the proper tools. If you work through this book and the other books in this series, you should meet the exam requirements.

Exam Requirements

Successful candidates must pass a minimum set of exams that measure technical proficiency and expertise:

- Candidates for MCSE certification must pass seven exams, including four core-operating-system exams, one design exam, and two electives.

- Candidates who have already passed three Windows NT 4 exams (70- 067, 70-068, and 70-073) may opt to take an "accelerated" exam, plus one core design exam and two electives.

NOTE If you do not pass the accelerated exam after one attempt, you must pass the five core requirements and two electives.

The following tables show the exams that a new certification candidate must pass. All of these exams are required:

Exam #	Title	Requirement Met
70-216	Implementing and Administering a Microsoft Windows 2000 Network Infrastructure	Core (Operating System)
70-210	Installing, Configuring, and Administering Microsoft Windows 2000 Professional	Core (Operating System)
70-215	Installing, Configuring, and Administering Microsoft Windows 2000 Server	Core (Operating System)
70-217	Implementing and Administering a Microsoft Windows 2000 Directory Services Infrastructure	Core (Operating System)

One of these exams is required:

Exam #	Title	Requirement Met
70-219	Designing a Microsoft Windows 2000 Directory Services Infrastructure	Core (Design)
70-220	Designing Security for a Microsoft Windows 2000 Network	Core (Design)
70-221	Designing a Microsoft Windows 2000 Network Infrastructure	Core (Design)

Two of these exams are required:

Exam #	Title	Requirement Met
70-219	Designing a Microsoft Windows 2000 Directory Services Infrastructure	Elective
70-220	Designing Security for a Microsoft Windows 2000 Network	Elective
70-221	Designing a Microsoft Windows 2000 Network Infrastructure	Elective
Any current MCSE elective	Exams cover topics such as Exchange Server, SQL Server, Systems Management Server, Internet Explorer Administrators' Kit, and Proxy Server; new exams are added regularly.	Elective

NOTE For a more detailed description of the Microsoft certification programs, including a list of current MCSE electives, check Microsoft's Training and Certification Web site at www.microsoft.com/trainingandservices.

Exam Registration

You can take the exams at any of more than 1,000 Authorized Prometric Testing Centers (APTCs) and VUE Testing Centers around the world. For the location of a testing center near you, call Sylvan Prometric at (800) 755-EXAM (755-3926), or call VUE at (888) 837-8616. Outside the United States and Canada, contact your local Sylvan Prometric or VUE registration center.

You should determine the number of the exam that you want to take and then register with the Sylvan Prometric or VUE registration center nearest to you. At this point, you will be asked for advance payment for the exam. The exams are $100 each. Exams must be taken within one year of payment. You can schedule exams up to six weeks in advance or as late as one working day before the date of the exam. You can cancel or reschedule your exam if you contact the center at least two working days before the exam. Same-day registration is available in some locations, subject to space availability. Where

same-day registration is available, you must register a minimum of two hours before test time.

TIP You may also register for your exams online at www.sylvanprometric.com or www.vue.com.

When you schedule the exam, you will be provided instructions about appointment and cancellation procedures, ID requirements, and information about the testing-center location. In addition, you will receive a registration- and payment-confirmation letter from Sylvan Prometric or VUE.

Microsoft requires certification candidates to accept the terms of a nondisclosure agreement before taking certification exams.

What Exam 70-216: Implementing and Administering a Microsoft Windows 2000 Network Infrastructure Measures

The 216 Network Infrastructure Administration exam could also be called the network protocol routing, security, and naming exam. The objectives include the three Windows 2000 naming services: DNS, DHCP, and WINS. Using Windows 2000 as a multiprotocol router is explored, along with remote access procedures, issues and security concerns. Network infrastructure security processes—implementing certificate authorities and IPSec—are included as well.

Tips for Taking Your Exam

Here are some general tips for taking your exam successfully:

- Arrive at the exam center early so that you can relax and review your study materials, particularly tables and lists of exam-related information.

- Read the questions carefully. Don't be tempted to jump to an early conclusion. Make sure that you know exactly what the question is asking.

- Don't leave any unanswered questions; they count against you.

- When answering multiple-choice questions you're not sure about, use a process of elimination to get rid of the obviously incorrect questions first. This technique will improve your odds if you need to make an educated guess.

- This test has many exhibits (pictures). It can be difficult, if not impossible, to view both the questions and the exhibit simulation on the 14- and 15-

inch screens commonly used at the testing centers. Call around to the centers and see whether 17-inch monitors are available. If not, perhaps you can arrange to bring in your own. Failing this, some people have found it useful to draw the diagram on the scratch paper provided by the testing center and use the monitor to view just the question.

- Many participants run out of time before they are able to complete the test. If you are unsure of the answer to a question, you may want to choose one of the answers, mark the question, and go on; an unanswered question does not help you. When your time is up, you cannot go on to another question. You can, however, remain on the question you are on indefinitely when the time runs out. Therefore, when you are almost out of time, go to a question that you feel you can figure out, given enough time, and work until you feel you have the answer (or the night security guard boots you out).

- You are allowed to use the Windows calculator during your test. It may be better, however, to memorize a table of the subnet addresses and to write it down on the scratch paper supplied by the testing center before you start the test.

When you complete an exam, you receive immediate online notification of your pass or fail status. You also receive a printed Examination Score Report, indicating your pass or fail status and your exam results by section. (The test administrator gives you the printed score report.) Test scores are forwarded to Microsoft automatically within five working days after you take the test; you do not need to send your score to Microsoft. If you pass the exam, you receive confirmation from Microsoft, typically within two to four weeks.

Contact Information

To find out more about Microsoft Education and Certification materials and programs, to register with Sylvan Prometric, or to get other useful information, check the following resources. Outside the United States or Canada, contact your local Microsoft office or Sylvan Prometric testing center.

Microsoft Certified Professional Program—(800) 636-7544
Call the MCPP number for information about the Microsoft Certified Professional program and exams and to order the latest Microsoft Roadmap to Education and Certification.

Sylvan Prometric Testing Centers—(800) 755-EXAM
Contact Sylvan to register to take a Microsoft Certified Professional exam at any of more than 800 Sylvan Prometric testing centers around the world.

Microsoft Certification Development Team—Web: http:// www.micro-soft.com/trainingandservices/default.asp

Contact the Microsoft Certification Development Team through its Web site to volunteer to participate in one or more exam-development phases or to report a problem with an exam. Address written correspondence to Certification Development Team; Microsoft Education and Certification; One Microsoft Way; Redmond, WA 98052.

Microsoft TechNet Technical Information Network—(800) 344-2121

This network is an excellent resource for support professionals and system administrators. Outside the United States and Canada, call your local Microsoft subsidiary for information.

How to Contact the Publisher

Sybex welcomes reader feedback on all its titles. Visit the Sybex Web site at www.sybex.com for book updates and additional certification information. The site also provides online forms for submitting comments and suggestions on this book or any other Sybex book.

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