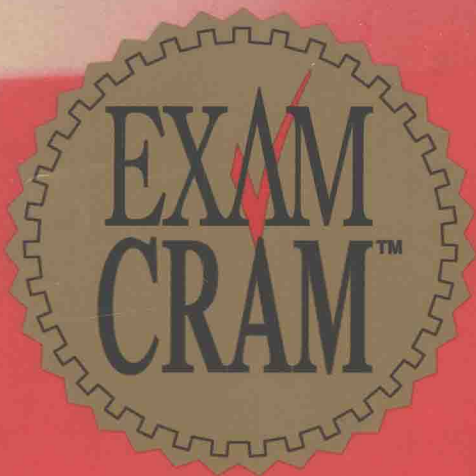


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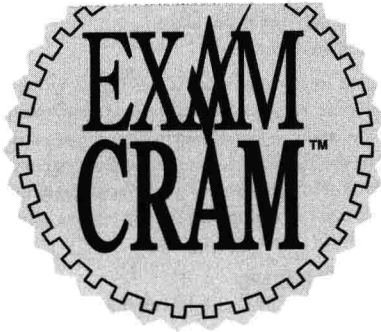
Exam 70-217

WINDOWS® 2000
Directory
Services

Microsoft
Certified
Systems
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**Will Willis, David V. Watts,
J. Peter Bruzzese**

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MCSE™

Windows® 2000

Directory

Services

Will Willis
David V. Watts
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MCSE™ Windows® 2000 Directory Services Exam Cram

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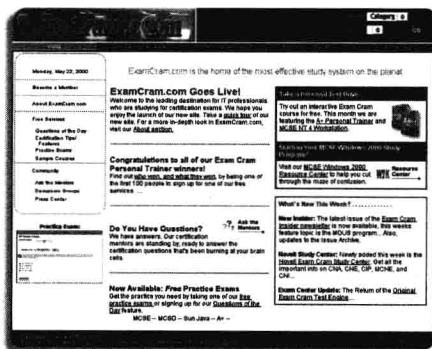
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About the Authors

Will Willis (MCSE, A+, Network+) is an MIS responsible for a switched/routed 10/100MB Ethernet and Frame Relay TCP/IP LAN/WAN that connects multiple sites in Texas. His duties include department management, vendor relations (negotiating and securing goods and services as needed), and administering/managing the entire network. Administration includes responsibility for documentation, establishing corporate standard operating procedures, maintaining disaster recovery preparedness, developing antivirus strategies, maintaining firewalls and network security, ensuring server maintenance and upgrades, and ensuring the reliability and availability of network resources.

Will started out as a help desk technician, providing technical support over the phone for PC hardware and software, and later moved up to a desktop/LAN support specialist position at another company, working on an 8-person team that supported a 3,000+ user multiple-site network. Will then moved to his current position, in which he administers NT 4 servers running BackOffice applications Exchange Server 5.5, IIS 3 and 4, SQL Server 6.5, and SMS 1.2. Will also shares ownership in **InsideIS.com**, a Web site devoted to the IT profession. When not busy being a techie, he enjoys spending time with his family and writing and recording original music. You can reach Will at **WWillis@Inside-Corner.com**.

David V. Watts (MCSE, MCSD, CNE, Network+) is currently employed by Hilton Computer Strategies in Houston, TX. David is from Basildon, Essex, in England. He has worked in the United States since 1988, as both a consultant and a project lead on enterprise-level deployments of Microsoft technologies.

David has been working with Windows 2000 since the first betas. He has specific expertise in Microsoft BackOffice products, including Systems Management Server, Microsoft SQL Server, and Microsoft Exchange. David can currently be found teaching these technologies to students at all levels. When he is not teaching, he spends most of his time mentoring fellow professionals in the workplace and online at **InsideIS.com** and **2000tutor.com**. When David is not working on technology, he can be found listening to music. You can reach David at **dwatts@wt.net**.

About the Authors

J. Peter Bruzzese (MCSE+I, MCT, CNA, Network+, A+, i-Net+) has been in the IT training and support field for eight years, working for companies like Goldman, Sachs & Co., Merrill Lynch, and Solomon Smith Barney. Peter is highly regarded by his peers as an expert in public speaking and technical training. He is currently teaching Windows 2000 courses for New Horizons Computer Learning Center of Princeton, New Jersey, which is part of the largest independent IT training company in the world.

Acknowledgments

I'd like to take a moment to acknowledge some of the people that have made an impact on my life and the person I've turned out to be, in no particular order.

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Grover Cleveland—the great President who fought the intense resistance to leave the gold standard, forever changing the U.S. economy and making a huge world impact. To stand by your vision when everyone says you're wrong takes tremendous confidence and determination.

Herb Kelleher—Southwest Airlines CEO who has recognized that people are his company's greatest asset. Loyalty and commitment from him has bred loyalty and commitment from his employees, an example that more companies should follow and one I hope to foster as a leader in my own company.

Andrew Carnegie—the richest man in the world during his life, for the conviction that the “surplus wealth that a man accumulates in a community is only a sacred trust to be administered for the good of the community in which it was accumulated.” An admirable philosophy of using one's own good fortune for the benefit of others.

Jesus Christ—the light in an increasingly darkening world. Through him hope never fades and life is eternal.

“Let's stare the problem right in the eye ... racing the clock to please everyone, all but the one who matters the most”—a favorite quote (of unknown origin) that reminds me not to overcommit myself and lose focus on the person that matters the most to me, Melissa.

—*Will Willis*

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As I get older, I realize that I must take time to cherish all the things I have and all the people who are part of who I am. Sometimes people can touch you in the briefest space of time, but their influence can be lifelong. So many people have helped me along the way that there is no space to thank them all. Some were teachers, some colleagues, but none have been disposable. To my grandparents who are no longer with us, I wish I could have known you better—but I still think of you. To lost family friends, thank you for contributing in any small way to helping me be what I am today. Writing acknowledgments is a humbling experience, because you realize there are so many people to reach out to. Sadly,

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some are no longer here to thank. But you live on in those you taught, mentored, or touched. And that is the greatest legacy any of us can hope for. Never gone, never forgotten.

—*David V. Watts*

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—*J. Peter Bruzzese*

Introduction

Welcome to *MCSE Windows 2000 Directory Services Exam Cram*! Whether this is your first or your fifteenth *Exam Cram* book, you'll find information here and in Chapter 1 that will help ensure your success as you pursue knowledge, experience, and certification. This book aims to help you get ready to take—and pass—Microsoft certification Exam 70-217, titled “Implementing and Administering a Microsoft Windows 2000 Directory Services Infrastructure.” This Introduction explains Microsoft’s certification programs in general and talks about how the *Exam Cram* series can help you prepare for Microsoft’s Windows 2000 certification exams.

Exam Cram books help you understand and appreciate the subjects and materials you need to pass Microsoft certification exams. *Exam Cram* books are aimed strictly at test preparation and review. They do not teach you everything you need to know about a topic. Instead, we (the authors) present and dissect the questions and problems we’ve found that you’re likely to encounter on a test. We’ve worked to bring together as much information as possible about Microsoft certification exams.

Nevertheless, to completely prepare yourself for any Microsoft test, we recommend that you begin by taking the Self-Assessment included in this book immediately following this Introduction. This tool will help you evaluate your knowledge base against the requirements for an MCSE under both ideal and real circumstances.

Based on what you learn from that exercise, you might decide to begin your studies with some classroom training or some background reading. On the other hand, you might decide to pick up and read one of the many study guides available from Microsoft or third-party vendors on certain topics, including The Coriolis Group’s *Exam Prep* series. We also recommend that you supplement your study program with visits to **ExamCram.com** to receive additional practice questions, get advice, and track the Windows 2000 MCSE program.

We also strongly recommend that you install, configure, and fool around with the software that you’ll be tested on, because nothing beats hands-on experience and familiarity when it comes to understanding the questions you’re likely to encounter on a certification test. Book learning is essential, but hands-on experience is the best teacher of all!

The Microsoft Certified Professional (MCP) Program

The MCP Program currently includes the following separate tracks, each of which boasts its own special acronym (as a certification candidate, you need to have a high tolerance for alphabet soup of all kinds):

- *MCP (Microsoft Certified Professional)*—This is the least prestigious of all the certification tracks from Microsoft. Passing one of the major Microsoft exams qualifies an individual for the MCP credential. Individuals can demonstrate proficiency with additional Microsoft products by passing additional certification exams.
- *MCP+SB (Microsoft Certified Professional + Site Building)*—This certification program is designed for individuals who are planning, building, managing, and maintaining Web sites. Individuals with the MCP+SB credential will have demonstrated the ability to develop Web sites that include multimedia and searchable content and Web sites that connect to and communicate with a back-end database. It requires one MCP exam, plus two of these three exams: “70-055: Designing and Implementing Web Sites with Microsoft FrontPage 98,” “70-057: Designing and Implementing Commerce Solutions with Microsoft Site Server 3.0, Commerce Edition,” and “70-152: Designing and Implementing Web Solutions with Microsoft Visual InterDev 6.0.”
- *MCSE (Microsoft Certified Systems Engineer)*—Anyone who has a current MCSE is warranted to possess a high level of networking expertise with Microsoft operating systems and products. This credential is designed to prepare individuals to plan, implement, maintain, and support information systems, networks, and internetworks built around Microsoft Windows 2000 and its BackOffice Server 2000 family of products.

To obtain an MCSE, an individual must pass four core operating system exams, one optional core exam, and two elective exams. The operating system exams require individuals to prove their competence with desktop and server operating systems and networking/internetworking components.

For Windows NT 4 MCSEs, the Accelerated exam, “70-240: Microsoft Windows 2000 Accelerated Exam for MCPs Certified on Microsoft Windows NT 4.0,” is an option. This free exam covers all of the material tested in the Core Four exams. The hitch in this plan is that you can take the test only once. If you fail, you must take all four core exams to recertify. The Core Four exams are: “70-210: Installing, Configuring and Administering Microsoft Windows 2000 Professional,” “70-215: Installing, Configuring and Administering Microsoft

Windows 2000 Server,” “70-216: Implementing and Administering a Microsoft Windows 2000 Network Infrastructure,” and “70-217: Implementing and Administering a Microsoft Windows 2000 Directory Services Infrastructure.”

To fulfill the fifth core exam requirement, you can choose from three design exams: “70-219: Designing a Microsoft Windows 2000 Directory Services Infrastructure,” “70-220: Designing Security for a Microsoft Windows 2000 Network,” or “70-221: Designing a Microsoft Windows 2000 Network Infrastructure.” You are also required to take two elective exams. An elective exam can fall in any number of subject or product areas, primarily BackOffice Server 2000 components. The two design exams that you don’t select as your fifth core exam also qualify as electives. If you are on your way to becoming an MCSE and have already taken some exams, visit www.microsoft.com/trainingandservices/ for information about how to complete your MCSE certification.

In September 1999, Microsoft announced its Windows 2000 track for MCSE and also announced retirement of Windows NT 4.0 MCSE core exams on 12/31/2000. Individuals who wish to remain certified MCSEs after 12/31/2001 must “upgrade” their certifications on or before 12/31/2001. For more detailed information than is included here, visit www.microsoft.com/trainingandservices/.

New MCSE candidates must pass seven tests to meet the MCSE requirements. It’s not uncommon for the entire process to take a year or so, and many individuals find that they must take a test more than once to pass. The primary goal of the *Exam Prep* and *Exam Cram* test preparation books is to make it possible, given proper study and preparation, to pass all Microsoft certification tests on the first try. Table 1 shows the required and elective exams for the Windows 2000 MCSE certification.

- *MCSD (Microsoft Certified Solution Developer)*—The MCSD credential reflects the skills required to create multitier, distributed, and COM-based solutions, in addition to desktop and Internet applications, using new technologies. To obtain an MCSD, an individual must demonstrate the ability to analyze and interpret user requirements; select and integrate products, platforms, tools, and technologies; design and implement code, and customize applications; and perform necessary software tests and quality assurance operations.

To become an MCSD, you must pass a total of four exams: three core exams and one elective exam. Each candidate must choose one of these three desktop application exams—“70-016: Designing and Implementing Desktop Applications with Microsoft Visual C++ 6.0,” “70-156: Designing and Implementing Desktop Applications with Microsoft Visual FoxPro 6.0,” or “70-176: Designing and Implementing Desktop Applications with Microsoft Visual Basic 6.0”—*plus* one of these

Table 1 MCSE Windows 2000 Requirements**Core****If you have not passed these 3 Windows NT 4 exams**

Exam 70-067	Implementing and Supporting Microsoft Windows NT Server 4.0
Exam 70-068	Implementing and Supporting Microsoft Windows NT Server 4.0 in the Enterprise
Exam 70-073	Microsoft Windows NT Workstation 4.0

then you must take these 4 exams

Exam 70-210	Installing, Configuring and Administering Microsoft Windows 2000 Professional
Exam 70-215	Installing, Configuring and Administering Microsoft Windows 2000 Server
Exam 70-216	Implementing and Administering a Microsoft Windows 2000 Network Infrastructure
Exam 70-217	Implementing and Administering a Microsoft Windows 2000 Directory Services Infrastructure

If you have already passed exams 70-067, 70-068, and 70-073, you may take this exam

Exam 70-240	Microsoft Windows 2000 Accelerated Exam for MCPs Certified on Microsoft Windows NT 4.0
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5th Core Option**Choose 1 from this group**

Exam 70-219*	Designing a Microsoft Windows 2000 Directory Services Infrastructure
Exam 70-220*	Designing Security for a Microsoft Windows 2000 Network
Exam 70-221*	Designing a Microsoft Windows 2000 Network Infrastructure

Elective**Choose 2 from this group**

Exam 70-019	Designing and Implementing Data Warehouse with Microsoft SQL Server 7.0
Exam 70-219*	Designing a Microsoft Windows 2000 Directory Services Infrastructure
Exam 70-220*	Designing Security for a Microsoft Windows 2000 Network
Exam 70-221*	Designing a Microsoft Windows 2000 Network Infrastructure
Exam 70-222	Migrating from Microsoft Windows NT 4.0 to Microsoft Windows 2000
Exam 70-028	Administering Microsoft SQL Server 7.0
Exam 70-029	Designing and Implementing Databases on Microsoft SQL Server 7.0
Exam 70-080	Implementing and Supporting Microsoft Internet Explorer 5.0 by Using the Internet Explorer Administration Kit
Exam 70-081	Implementing and Supporting Microsoft Exchange Server 5.5
Exam 70-085	Implementing and Supporting Microsoft SNA Server 4.0
Exam 70-086	Implementing and Supporting Microsoft Systems Management Server 2.0
Exam 70-088	Implementing and Supporting Microsoft Proxy Server 2.0

This is not a complete listing—you can still be tested on some earlier versions of these products. However, we have included mainly the most recent versions so that you may test on these versions and thus be certified longer. We have not included any tests that are scheduled to be retired.

* The 5th Core Option exam does not double as an elective.

three distributed application exams—“70-015: Designing and Implementing Distributed Applications with Microsoft Visual C++ 6.0,” “70-155: Designing and Implementing Distributed Applications with Microsoft Visual FoxPro 6.0,” or “70-175: Designing and Implementing Distributed Applications with Microsoft Visual Basic 6.0.” The third core exam is “70-100: Analyzing Requirements and Defining Solution Architectures.” Elective exams cover specific Microsoft applications and languages, including Visual Basic, C++, the Microsoft Foundation Classes, Access, SQL Server, Excel, and more.

- *MCDBA (Microsoft Certified Database Administrator)*—The MCDBA credential reflects the skills required to implement and administer Microsoft SQL Server databases. To obtain an MCDBA, an individual must demonstrate the ability to derive physical database designs, develop logical data models, create physical databases, create data services by using Transact-SQL, manage and maintain databases, configure and manage security, monitor and optimize databases, and install and configure Microsoft SQL Server.

To become an MCDBA, you must pass a total of four exams and one elective exam. The required core exams are “70-028: Administering Microsoft SQL Server 7.0,” “70-029: Designing and Implementing Databases with Microsoft SQL Server 7.0,” and “70-215: Installing, Configuring and Administering Microsoft Windows 2000 Server.”

The elective exams that you can choose from cover specific uses of SQL Server and include “70-015: Designing and Implementing Distributed Applications with Microsoft Visual C++ 6.0,” “70-019: Designing and Implementing Data Warehouses with Microsoft SQL Server 7.0,” “70-155: Designing and Implementing Distributed Applications with Microsoft Visual FoxPro 6.0,” “70-175: Designing and Implementing Distributed Applications with Microsoft Visual Basic 6.0,” and two exams that relate to Windows 2000: “70-216: Implementing and Administering a Microsoft Windows 2000 Network Infrastructure,” and “70-087: Implementing and Supporting Microsoft Internet Information Server 4.0.”

If you have taken the three core Windows NT 4 exams on your path to becoming an MCSE, you qualify for the Accelerated exam (it replaces the Network Infrastructure exam requirement). The Accelerated exam covers the objectives of all four of the Windows 2000 core exams. In addition to taking the Accelerated exam, you must take only the two SQL exams—Administering and Database Design.

- *MCT (Microsoft Certified Trainer)*—Microsoft Certified Trainers are deemed able to deliver elements of the official Microsoft curriculum, based on technical knowledge and instructional ability. Thus, it is necessary for an individual

seeking MCT credentials (which are granted on a course-by-course basis) to pass the related certification exam for a course and complete the official Microsoft training in the subject area, and to demonstrate an ability to teach.

This teaching skill criterion may be satisfied by proving that one has already attained training certification from Novell, Banyan, Lotus, the Santa Cruz Operation, or Cisco, or by taking a Microsoft-sanctioned workshop on instruction. Microsoft makes it clear that MCTs are important cogs in the Microsoft training channels. Instructors must be MCTs before Microsoft will allow them to teach in any of its official training channels, including Microsoft's affiliated Certified Technical Education Centers (CTECs) and its online training partner network. As of January 1, 2001, MCT candidates must also possess a current MCSE.

Microsoft has announced that the MCP+I and MCSE+I credentials will not be continued when the MCSE exams for Windows 2000 are in full swing because the skill set for the Internet portion of the program has been included in the new MCSE program. Therefore, details on these tracks are not provided here; go to www.microsoft.com/trainingandservices/ if you need more information.

Once a Microsoft product becomes obsolete, MCPs typically have to recertify on current versions. (If individuals do not recertify, their certifications become invalid.) Because technology keeps changing and new products continually supplant old ones, this should come as no surprise. This explains why Microsoft has announced that MCSEs have 12 months past the scheduled retirement date for the Windows NT 4 exams to recertify on Windows 2000 topics. (Note that this means taking at least two exams, if not more.)

The best place to keep tabs on the MCP Program and its related certifications is on the Web. The URL for the MCP program is www.microsoft.com/trainingandservices/. But Microsoft's Web site changes often, so if this URL doesn't work, try using the Search tool on Microsoft's site with either "MCP" or the quoted phrase "Microsoft Certified Professional" as a search string. This will help you find the latest and most accurate information about Microsoft's certification programs.

Taking a Certification Exam

Once you've prepared for your exam, you need to register with a testing center. Each computer-based MCP exam costs \$100, and if you don't pass, you may retest for an additional \$100 for each additional try. In the United States and Canada, tests are administered by Prometric and by Virtual University Enterprises (VUE). Here's how you can contact them:

- *Prometric*—You can sign up for a test through the company's Web site at www.prometric.com. Or, you can register by phone at 800-755-3926 (within the United States or Canada) or at 410-843-8000 (outside the United States and Canada).
- *Virtual University Enterprises*—You can sign up for a test or get the phone numbers for local testing centers through the Web page at www.vue.com/ms/.

To sign up for a test, you must possess a valid credit card, or contact either company for mailing instructions to send them a check (in the U.S.). Only when payment is verified, or a check has cleared, can you actually register for a test.

To schedule an exam, call the number or visit either of the Web pages at least one day in advance. To cancel or reschedule an exam, you must call before 7 P.M. pacific standard time the day before the scheduled test time (or you may be charged, even if you don't appear to take the test). When you want to schedule a test, have the following information ready:

- Your name, organization, and mailing address.
- Your Microsoft Test ID. (Inside the United States, this means your Social Security number; citizens of other nations should call ahead to find out what type of identification number is required to register for a test.)
- The name and number of the exam you wish to take.
- A method of payment. (As we've already mentioned, a credit card is the most convenient method, but alternate means can be arranged in advance, if necessary.)

Once you sign up for a test, you'll be informed as to when and where the test is scheduled. Try to arrive at least 15 minutes early. You must supply two forms of identification—one of which must be a photo ID—to be admitted into the testing room.

All exams are completely closed-book. In fact, you will not be permitted to take anything with you into the testing area, but you will be furnished with a blank sheet of paper and a pen or, in some cases, an erasable plastic sheet and an erasable pen. We suggest that you immediately write down on that sheet of paper all the information you've memorized for the test. In *Exam Cram* books, this information appears on a tear-out sheet inside the front cover of each book. You will have some time to compose yourself and record this information before you begin the exam.

When you complete a Microsoft certification exam, the software will tell you whether you've passed or failed. If you need to retake an exam, you'll have to schedule a new test with Prometric or VUE and pay another \$100.