About This Book

Welcome to *MCSA/MCSE Self-Paced Training Kit (Exam 70-291): Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure*. This book prepares you for the 70-291 exam by teaching you how to configure, manage, and troubleshoot various aspects of a Microsoft Windows Server 2003 network infrastructure. Each chapter walks you through the hands-on deployment and management of these various aspects, including the network addressing, name resolution, routing, remote access, and security. After you read this book, answer the associated questions, and perform all of the exercises included, you will have gained a thorough understanding of the essential components supporting Windows Server 2003 networks.

> **See Also**   For more information about becoming a Microsoft Certified Professional (MCM), see the section entitled "The Microsoft Certified Professional Program" later in this introduction.

Intended Audience

This book was developed for information technology (IT) professionals who plan to take the related Microsoft Certified Professional exam 70-291, as well as IT professionals who implement, administer, and support Windows Server 2003 networks.

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

Prerequisites

This training kit requires that students meet the following prerequisites:

- 18 months professional experience working with Windows networks
- Familiarity with networking concepts equivalent to that of a CompTIA Network+ certification

About the CD-ROM

This book includes a Supplemental CD-ROM. This CD-ROM contains a variety of informational aids to complement the book content:

- An electronic version of this book (eBook). For information about using the eBook, see the section "The eBooks" later in this introduction.

- The Microsoft Press Readiness Review Suite, powered by Measure Up. This suite of practice tests and objective reviews contains questions of varying degrees of complexity and offers multiple testing modes. You can assess your understanging of the concepts presented in this book and use the results to develop a learning plan that meets your needs.

- A Macromedia Flash introduction to Software Update Services (SUS).

- An eBook of the *Microsoft Encyclopedia of Networking, Second Edition*, and of the *Microsoft Encyclopedia of Security* provide complete and up-to-date reference materials for networking and security.

- Sample chapters from the following book titles give you additional information and introduce you to other resources that are available from Microsoft Press:

  ❏ *Microsoft Windows Server 2003 Administrator's Companion* by Charlie Russel, Sharon Crawford, and Jason Gerend

  ❏ *Microsoft Windows Server 2003 Deployment Kit: A Microsoft Resource Kit*

  ❏ *Microsoft Windows Security Resource Kit*

- A 22-page white paper published June 2002, entitled "Software Update Services Overview." This paper provides a good introduction to SUS but does not cover issues specific to Windows Server 2003.

- A 95-page white paper published January 2003, entitled "Deploying Microsoft Software Update Services." This paper provides in-depth information about implementing SUS on both Windows 2000 and Windows Server 2003 networks.

Important   Although deploying SUS is not listed among the objectives for exam 70-291, you may nevertheless see questions related to this topic on MCSE exams. It is therefore highly recommended that you review these papers and practice deploying SUS on a test network before taking exam 70-291.

- SUS Server 1.0 with Service Pack 1 (SP1).

- Automatic Updates client (SUS Server 1.0 with Service Pack 1 (SP1).)

- SUS Server with SP1 Release Notes and Installation Instructions.

A second CD-ROM contains a 180-day evaluation edition of Microsoft Windows Server 2003, Enterprise Edition.

Important   The 180-day evaluation edition provided with this training kit is not the full retail product and is provided only for the purposes of training and evaluation. Microsoft Technical Support does not support this evaluation edition.

For additional support information regarding this book and the supplemental CD-ROM (including answers to commonly asked questions about installation and use), visit the Microsoft Press Technical Support Web site at *http://www.microsoft.com/mspress/support/*. You can also e-mail tkinput@microsoft.com or send a letter to Microsoft Press, Attn: Microsoft Press Technical Support, One Microsoft Way, Redmond, WA 98052-6399.

Features of This Book

This book is divided into two parts. Use Part 1 to learn at your own pace and practice what you've learned with practical exercises. Part 2 contains questions and answers that you can use to test yourself on what you've learned.

Part 1: Learn at Your Own Pace

Each chapter in Part 1 identifies the exam objectives that are covered within the chapter, provides an overview of why the topics matter by identifying how the information applies in the real world, and lists any prerequisites that must be met to complete the lessons presented in the chapter.

The chapters are divided into lessons. Lessons contain practices made up of one or more hands-on exercises. These exercises give you an opportunity to use the skills being presented or explore the part of the application being described. Each lesson also has a set of review questions to test your knowledge of the material covered in the lesson. The answers to the questions are found in the Questions and Answers section at the end of each chapter.

After the lessons, you are given an opportunity to apply what you've learned in a case scenario exercise. In this exercise, you work through a multistep solution for a realistic case scenario. You are also given an opportunity to work through a troubleshooting lab that explores difficulties you might encounter when applying what you've learned in this book on the job.

Each chapter ends with a summary of key concepts, as well as a short section listing key topics and terms you need to know before taking the exam, summarizing the key learnings with a focus on the exam.

> ### Real World: Helpful Information
> You will find sidebars like this one that contain related information you might find helpful. "Real World" sidebars contain specific information gained through the experience of IT professionals like you.

Part 2: Prepare for the Exam

Part 2 helps to familiarize you with the types of questions that you will encounter on the MCP exam. By reviewing the objectives and the sample questions you can focus on the specific skills that you need to improve before taking the exam.

> **See Also**   For a complete list of MCP exams and their related objectives, go to *http://www.microsoft.com/traincert/mcp*.

Part 2 is organized by the exam's objectives. Each chapter covers one of the primary groups of objectives, called *Objective Domains*. Each chapter lists the tested skills you need to master to answer the exam questions and includes a list of further readings to help you improve your ability to perform the tasks or skills specified by the objectives.

Within each Objective Domain, you will find the related objectives that are covered on the exam. Each objective provides you with several practice exam questions. The answers are accompanied by explanations of each correct and incorrect answer.

> **Note**   These questions are also available on the companion CD-ROM as a practice test.

Informational Notes

The following types of reader aids appear throughout the training kit:

> **Tip**   Contains methods of performing a task more quickly or in a not-so-obvious way.

> **Important**   Contains information that is essential to completing a task.

> **Note**   Contains supplemental information.

> **Caution**   Contains valuable information about possible loss of data; be sure to read this information carefully.

> **Warning**   Contains critical information about possible physical injury; be sure to read this information carefully.

Planning   Contains hints and useful information that should help you plan an implementation.

Security Alert   Highlights information you need to know to maximize security in your work environment.

Exam Tip   Flags information you should know before taking the certification exam.

Off the Record   Contains practical advice about the real-world implications of information presented in the lesson.

Notational Conventions

The following conventions are used throughout this book.

■ 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, URLs, and key words and terms when they are first introduced.

■ 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 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 filename 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.

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 at the same time, and then release them and press L.

Getting Started

This training kit contains hands-on exercises to help you learn about deploying, managing, and troubleshooting a network infrastructure. Use this section to prepare your self-paced training environment.

To complete some of these procedures, you must have two networked computers and a means of connecting both computers to the Internet. Both computers must also be capable of running Windows Server 2003.

Caution Many of these exercises require you to configure settings that will affect addressing and other features your network. For this reason, it is not recommended that you perform these exercises on computers that are connected to a larger network.

Hardware Requirements

Each computer must have the following minimum configuration. All hardware should be on the Microsoft Windows Server 2003 Hardware Compatibility List.

■ Minimum 133 MHz in the Intel Pentium/Celeron family or the AMD K6/Athlon/Duron family

■ 128 MB memory

■ 2 GB available hard disk space

■ Display monitor capable of 800 x 600 resolution or higher.

■ CD-ROM drive or DVD drive

■ Microsoft Mouse or compatible pointing device

Software Requirements

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

- Windows Server 2003, Enterprise Edition (A 180-day evaluation edition of Windows Server 2003, Enterprise Edition is included on the CD-ROM.)

Caution   The 180-day evaluation edition provided with this training kit is not the full retail product and is provided only for the purposes of training and evaluation. Microsoft Technical Support does not support this evaluation edition. For additional support information regarding this book and the CD-ROMs (including answers to commonly asked questions about installation and use), visit the Microsoft Press Technical Support Web site at *http://mspress.microsoft.com /mspress/support/*. You can also e-mail tkinput@microsoft.com or send a letter to Microsoft Press, Attn: Microsoft Press Technical Support, One Microsoft Way, Redmond, WA 98052-6399.

Setup Instructions

Set up your computer according to the manufacturer's instructions.

For the exercises that require networked computers, you need to make sure the computers can communicate with each other. Once the computers are physically networked, install Windows Server 2003 on each computer. Use the following table during installation to help you configure each computer when the Windows Setup Wizard is run:

Windows Setup Wizard Page	Setting for First Computer	Setting for Second Computer
Regional And Language Options	Default (English).	Default (English).
Personalize Your Software	Type your name and organization.	Type your name and organization.
Your Product Key	Type the product key provided with the Windows Server 2003 CD-ROM.	Type the product key provided with the Windows Server 2003 CD-ROM.
Licensing Modes	Default.	Default.
Computer Name And Administrator Password	Computer Name: Computer1 Administrator Password: [Type a strong password of your choice.]	Computer Name: Computer2 Administrator Password: [Type a strong password of your choice, preferably distinct from that of the first computer.]

Windows Setup Wizard Page	Setting for First Computer	Setting for Second Computer
Modem Dialing Information	Default.	Default.
Date And Time Settings	Your date, time, and time zone.	Your date, time, and time zone.
Networking Settings	Default (Typical Settings).	Default (Typical Settings).
Workgroup Or Computer Domain	Default (workgroup named WORKGROUP).	Default (workgroup named WORKGROUP).

Caution   In general, you should not perform these configurations on computers that are part of a larger network. However, if you do, you *must* verify with your network administrator that the addresses, computer names, domain name, and other settings used do not conflict with network operations.

The Microsoft Press Readiness Review Suite, Powered by Measure Up

The CD-ROM includes a practice test made up of 300 sample exam questions. Use the practice test to reinforce your learning and identify areas in which you need to gain more experience before taking the exam.

▶ **To install the practice test and object review, complete the following steps:**

  1. Insert the Supplemental CD-ROM into your CD-ROM drive.

Note   If AutoRun is disabled on your machine, refer to the Readme.txt file on the CD-ROM.

  2. Click Readiness Review Suite on the User Interface menu and follow the prompts.

The eBooks

The CD-ROM includes an electronic version of this book that you can view on screen using Adobe Acrobat Reader. For more information, see the Readme.txt file included in the root folder of the Supplemental CD-ROM.

The Microsoft Certified Professional Program

The Microsoft Certified Professional (MCP) program provides the best method to prove your command of current Microsoft products and technologies. The exams and corresponding certifications are developed to validate your mastery of critical competencies as you design and develop, or implement and support, solutions with Microsoft products and technologies. Computer professionals who become Microsoft certified are rec-

ognized as experts and are sought after industrywide. Certification brings a variety of benefits to the individual and to employers and organizations.

> **See Also**   For a full list of MCP benefits, go to *http://www.Microsoft.com/traincert/start /itpro.asp*.

Certifications

The Microsoft Certified Professional program offers multiple certifications based on specific areas of technical expertise:

- ***Microsoft Certified Professional (MCP).***   Individuals with demonstrated in-depth knowledge of at least one Microsoft Windows operating system or architecturally significant platform. An MCP is qualified to implement a Microsoft product or technology as part of a business solution for an organization.

- ***Microsoft Certified Solution Developer (MCSD).***   Professional developers qualified to analyze, design, and develop enterprise business solutions with Microsoft development tools and technologies, including the Microsoft .NET Framework.

- ***Microsoft Certified Application Developer (MCAD).***   Professional developers qualified to develop, test, deploy, and maintain powerful applications using Microsoft tools and technologies, including Microsoft Visual Studio .NET and XML Web services.

- ***Microsoft Certified Systems Engineer (MCSE).***   Individuals qualified to analyze business requirements and design and implement the infrastructure for business solutions based on the Microsoft Windows and Microsoft Windows Server 2003 operating systems.

- ***Microsoft Certified Systems Administrator (MCSA).***   Individuals with the skills to manage and troubleshoot existing network and system environments based on the Microsoft Windows and Microsoft Windows Server 2003 operating systems.

- ***Microsoft Certified Database Administrator (MCDBA).***   Individuals qualified to design, implement, and administer Microsoft SQL Server databases.

- ***Microsoft Certified Trainer (MCT).***   Individuals who are instructionally and technically qualified to deliver Microsoft Official Curriculum through a Microsoft Certified Technical Education Center (CTEC).

Requirements for Becoming a Microsoft Certified Professional

The certification requirements differ for each certification and are specific to the products and job functions addressed by the certification.

To become a Microsoft Certified Professional, you must pass rigorous certification exams that provide a valid and reliable measure of technical proficiency and expertise. These exams are designed to test your expertise and ability to perform a role or task with a product, and are developed with the input of professionals in the industry. Questions on the exams reflect how Microsoft products are used in actual organizations, giving them real-world relevance.

■ Microsoft Certified Product (MCP) candidates are required to pass one current Microsoft certification exam. Candidates can pass additional Microsoft certification exams to further qualify their skills with other Microsoft products, development tools, or desktop applications.

■ Microsoft Certified Solution Developers (MCSDs) are required to pass three core exams and one elective exam. (MCSDs for Microsoft .NET candidates are required to pass four core exams and one elective.)

■ Microsoft Certified Application Developers (MCADs) are required to pass two core exams and one elective exam in an area of specialization.

■ Microsoft Certified Systems Engineers (MCSEs) are required to pass five core exams and two elective exams.

■ Microsoft Certified Systems Administrators (MCSAs) are required to pass three core exams and one elective exam that provide a valid and reliable measure of technical proficiency and expertise.

■ Microsoft Certified Database Administrators (MCDBAs) are required to pass three core exams and one elective exam that provide a valid and reliable measure of technical proficiency and expertise.

■ Microsoft Certified Trainers (MCTs) are required to meet instructional and technical requirements specific to each Microsoft Official Curriculum course they are certified to deliver. The MCT program requires ongoing training to meet the requirements for the annual renewal of certification. For more information about becoming a Microsoft Certified Trainer, visit *http://www.microsoft.com/traincert /mcp/mct* or contact a regional service center near you.

Technical Support

Every effort has been made to ensure the accuracy of this book and the contents of the companion CD-ROM. If you have comments, questions, or ideas regarding this book or the companion CD-ROM, please send them to Microsoft Press using either of the following methods:

E-mail:	tkinput@microsoft.com
Postal mail:	Microsoft Press Attn: MCSE Self-Paced Training Kit (Exam 70-291): Series Editor One Microsoft Way Redmond, WA 98052-6399

For additional support information regarding this book and the CD-ROM (including answers to commonly asked questions about installation and use), visit the Microsoft Press Technical Support Web site at *http://www.microsoft.com/mspress/support/*. To connect directly to the Microsoft Press Knowledge Base and enter a query, visit *http://www.microsoft.com/mspress/support/search.asp*. For support information regarding Microsoft software, please connect to *http://support.microsoft.com*.

Evaluation Edition Software Support

The 180-day evaluation edition provided with this training kit is not the full retail product and is provided only for the purposes of training and evaluation. Microsoft Technical Support does not support this evaluation edition.

Caution   The evaluation edition of Microsoft Windows Server 2003, Enterprise Edition included with this book should not be used on a primary work computer. The evaluation edition is unsupported. For online support information relating to the full version of Microsoft Windows Server 2003, Enterprise Edition that *might* also apply to the evaluation edition, you can connect to *http://support.microsoft.com*.

Information about any issues relating to the use of this evaluation edition with this training kit is posted to the Support section of the Microsoft Press Web site (*http://www.microsoft.com/mspress/support/*). For information about ordering the full version of any Microsoft software, please call Microsoft Sales at (800) 426-9400 or visit *http://www.microsoft.com*.