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MCAD/MCSD 学习指南

MICROSOFT CERTIFIED APPLICATION DEVELOPER
& MICROSOFT CERTIFIED SOLUTION DEVELOPER

——XML Web Services and Server Components Development with Visual Basic .NET

(Exam 70-310)

(英文版)

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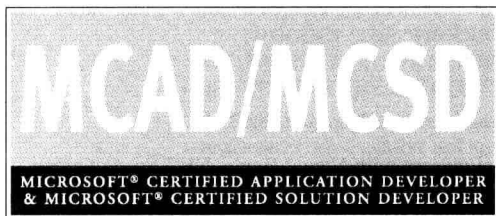


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内容提要

本书以 MCAD/MCSD 认证考试为目标,内容涵盖了 MCAD/MCSD 核心考试 70-310 的所有考试要点,尽可能详细地介绍了 MCAD/MCSD 应试者所应该掌握的所有技能。

本书在介绍考试要点时针对每个考试目标,使用了大量的插图、表格、试验、测试等,使读者在牢固掌握知识点的同时,轻松地获得丰富的实践经验。

本书由具有丰富 MCAD/MCSD 考试经验的专家编写,是参加 MCAD/MCSD 考试人员的必备考试教材。本书也是一本学习使用和管理 Visual Basic .NET 的很好的参考书,还可以作为一些疑难问题的速查手册。

I dedicate this book to my long-suffering wife Dorette, who has been a “computer widow” almost since the day we got married. Dorette, thank you for your unwavering support in my professional endeavors. You know as well as I do that the future for us will be one of glorious freedom from the shackles of normal life. I would like to take this opportunity to ask for your hand again, 25 years later.

—*Kenneth S. Lind*

ABOUT THE CONTRIBUTORS

Author

Kenneth S. Lind, MCSD, MCAD, MCSE+I, MCSE, MCP+SB, MCT, and CTT+, is an independent training consultant and author working out of Toronto, Ontario. Kenneth has over 20 years experience in software development and has developed applications using C, FORTRAN, C++, Java, VB, C#, and assembler. Kenneth left his native Sweden after receiving an engineering degree in Telecommunication, a move he never regretted. Kenneth has specialized in object-oriented (OO) development and its use in Java and C++. His most recent project has been co-authorship of a certification study guide for C# .NET published by McGraw-Hill/Osborne. Kenneth can be reached at KennethSLind@Hotmail.com.

Technical Editor

Marj Rempel (MCSD, MCSE, MCT, CTT+, JCP, A+, CCNA) is a computer professor for Durham College. Since attending the University of Waterloo in the dark ages of computer processing, over 25 years ago, Marj has been involved in software development for mainframe computers and—for the past 15 years—in the PC arena using C, Java, Visual Basic, and Visual C# .NET. After spending three years teaching software development in the corporate field, she recently accepted her current position as a professor and specializes in teaching computer-related subjects. Marj is the co-author of a certification study guide for C# .NET.

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PREFACE

This book was written to assist you in preparing for and passing the Developing XML Web Services and Server Components with Microsoft Visual Basic .NET and the Microsoft .NET Framework Exam 70-310. The text and exercises were created to help familiarize you with the topics you will be tested on during the actual exam.

In This Book

While this book is designed to be a focused exam preparation tool, you will also find discussion of the theory and methodologies behind working with the .NET Framework. The hands-on exercises were designed to give you additional experience with the .NET Framework while reinforcing understanding of the concepts.

In Every Chapter

The Study Guide series contains a number of chapter elements that were designed to help you identify important items, to reinforce key points, and to offer expert tips for taking the exam. Each chapter contains the following:

- **Certification Objectives** Each chapter begins with a listing of the exam objectives that will be covered in the chapter.
- **Exam Watch** These are tips I have designed to help you focus your studies on areas that will be important for the exam.
- **Practice Exercises** Hands-on experience is a key factor to success on exam day, and these practice exercises are designed to help you reinforce your skills. It's important that you work through these exercises rather than simply reading them, so that you increase your exposure to and familiarity with the .NET Framework.
- **On the Job** Designed to let you benefit from my experience, this element provides insights into the practical application of the theories presented in the text.

- **Scenarios & Solutions** This element introduces you to common real-life situations that you may encounter on the job and provides you with a quick solution.

SCENARIO & SOLUTION

What should I do when I upgrade if I have variables declared within blocks of code (such as If, Do loops, Select)?	The Upgrade Wizard will move the variable declarations to the procedure level. You should review the use of these variables to make sure the functionality is still correct.
What should I do if my code has arrays that begin with a lower bound of anything other than 0?	You should go through all of the code to make sure it will continue to work when arrays have a lower bound of 0. You can either make necessary changes to your Visual Basic 6.0 code, or you can first run the Upgrade Wizard and then make changes to the .NET code. The Upgrade Wizard will insert comments in spots where there is the potential for a problem.
What should I do if my application uses DAO or RDO to bind controls to a database?	You should upgrade the data access to ADO if you want the Upgrade Wizard to automatically change the means of data binding to ADO.NET.

- **The Certification Summary** This is a general review of the material that was presented in the chapter. These summaries provide a quick-review option prior to taking the exam.

- ✓ ■ **The Two-Minute Drill** At the end of every chapter, you will find a listing of the key objective points from the chapter. These are great as a final review study tool.

Q&A

- **The Self Test** Our self-assessment section presents questions similar to those you'll find on the actual exam; it is designed to help you identify those areas in which you may need additional study. Complete answers with explanations are located at the end of each chapter.

author's

Note

Please be aware that the questions and answers at the end of some chapters do not match the order of those found in the corresponding chapters on the CD-ROM.

On the CD-ROM

This book includes a CD-ROM with simulation assessment and training software. Be sure to look through the software—it includes more than one hour of interactive instructional video training, and also a self-assessment test engine containing practice test questions that are found *only* on the CD-ROM.

The CD-ROM with this book also contains the code for many of the exercises so that it's not necessary for you to recreate the code from scratch. The Glossary for the book also appears there. These features can be accessed only through the CD-ROM.

PDF versions of the chapters from the book are also available on the CD-ROM. Please be aware, though, that the questions and answers at the end of some chapters in the printed book do not match the order of those in corresponding chapters on the CD-ROM.

For more information about the CD-ROM, please see Appendix A.

ACKNOWLEDGMENTS

I would like to thank the very supportive and hard-working staff at McGraw-Hill/Osborne for working with me as a team to make this book a reality. Thanks go to Betsy Manini for understanding my formatting problems, Marj Remple for her technical insights, Robert Campbell for turning my Swinglish into English, and Jessica Wilson for keeping us in control. I would also like to thank Nancy Maragioglio, who provided the management needed to bring this book to fruition.

Finally, I would like to thank my wife Dorette, my daughter Inga, and my son Anders, for their support and for not calling the Men in White when I mumbled incoherently about Visual Basic .NET and XML in a never-ending sequence of days and nights.

—*Kenneth S. Lind*

INTRODUCTION

Welcome to MCAD/MCSD XML Web Services and Server Components Development with Visual Basic .NET Study Guide (Exam 70-310). The author has written this book to help prepare you for the Developing XML Web Services and Server Components with Microsoft Visual Basic .NET and the Microsoft .NET Framework certification exam. Whether you're preparing for your MCSD or getting started with your MCAD, this book will guide you through the key points of each of the exam objectives.

MCAD vs. MCSD

How do you know whether to pursue MCAD or MCSD? Consider your career plan—while the MCAD is a less comprehensive certification than the MCSD, it may reflect your actual interests and skills better than the MCSD. You may decide to start with the MCAD and then add exams until you reach the MCSD level as your career changes.

According to Microsoft, candidates for the MCAD certification credential are professionals who use Microsoft technologies to develop and maintain department-level applications, components, Web or desktop clients, or back-end data services or who work in teams developing enterprise applications.

Candidates for the MCSD certification, on the other hand, are lead developers who design and develop leading-edge enterprise solutions with Microsoft development tools, technologies, platforms, and the Microsoft .NET Framework.

MCSD certification encompasses the skill set of the MCAD certification, and MCAD can be considered an interim step toward MCSD certification.

MCSD Certification Requirements

Achieving the MCSD certification requires passing four core exams and one elective exam. The core exams are listed in the following boxed text.

MCSD CORE EXAMS	
Solution Architecture Exam (Required)	Exam 70-300: Analyzing Requirements and Defining .NET Solution Architectures
Web Application Development Exams (One Required)	Exam 70-305: Developing and Implementing Web Applications with Microsoft Visual Basic .NET and Microsoft Visual Studio .NET Or Exam 70-315: Developing and Implementing Web Applications with Microsoft Visual C# .NET and Microsoft Visual Studio .NET
Windows Application Development Exams (One Required)	Exam 70-306: Developing and Implementing Windows-Based Applications with Microsoft Visual Basic .NET and Microsoft Visual Studio .NET Or Exam 70-316: Developing and Implementing Windows-Based Applications with Microsoft Visual C# .NET and Microsoft Visual Studio .NET
Web Services and Server Components Exams (One Required)	Exam 70-310: Developing XML Web Services and Server Components with Microsoft Visual Basic .NET and the Microsoft .NET Framework Or Exam 70-320: Developing XML Web Services and Server Components with Microsoft Visual C# and the Microsoft .NET Framework

In addition to the core exams, you must pass one of the following elective exams:

- **Exam 70-229:** Designing and Implementing Databases with Microsoft SQL Server 2000, Enterprise Edition
- **Exam 70-230:** Designing and Implementing Solutions with Microsoft BizTalk Server 2000 Enterprise Edition
- **Exam 70-234:** Designing and Implementing Solutions with Microsoft Commerce Server 2000

MCAD Certification Requirements

Microsoft's MCAD requires only three core exams and one elective, and it permits the use of some exams as either core or elective credit.

MCAD CORE EXAMS**Web or Windows Application Development Exams (One Required)**

Exam 70-305: Developing and Implementing Web Applications with Microsoft Visual Basic .NET and Microsoft Visual Studio .NET

Or

Exam 70-315: Developing and Implementing Web Applications with Microsoft Visual C# .NET and Microsoft Visual Studio .NET

Or

Exam 70-306: Developing and Implementing Windows-Based Applications with Microsoft Visual Basic .NET and Microsoft Visual Studio .NET

Or

Exam 70-316: Developing and Implementing Windows-Based Applications with Microsoft Visual C# .NET and Microsoft Visual Studio .NET

Web Services and Server Components Exams (One Required)

Exam 70-310: Developing XML Web Services and Server Components with Microsoft Visual Basic .NET and the Microsoft .NET Framework

Or

Exam 70-320: Developing XML Web Services and Server Components with Microsoft Visual C# and the Microsoft .NET Framework

In addition to the core exams, you must pass one of the following elective exams:

- **Exam 70-229:** Designing and Implementing Databases with Microsoft SQL Server 2000, Enterprise Edition
- **Exam 70-230:** Designing and Implementing Solutions with Microsoft BizTalk Server 2000 Enterprise Edition
- **Exam 70-234:** Designing and Implementing Solutions with Microsoft Commerce Server 2000

Furthermore, the following examinations may be used for elective credit if they have not been used toward core exam credit:

- **Exam 70-305:** Developing and Implementing Web Applications with Microsoft Visual Basic .NET and Microsoft Visual Studio .NET
- **Exam 70-306:** Developing and Implementing Windows-Based Applications with Microsoft Visual Basic .NET and Microsoft Visual Studio .NET
- **Exam 70-310:** Developing XML Web Services and Server Components with Microsoft Visual Basic .NET and the Microsoft .NET Framework

- **Exam 70-315:** Developing and Implementing Web Applications with Microsoft Visual C# .NET and Microsoft Visual Studio .NET
- **Exam 70-316:** Developing and Implementing Windows-Based Applications with Microsoft Visual C# .NET and Microsoft Visual Studio .NET
- **Exam 70-320:** Developing XML Web Services and Server Components with Microsoft Visual C# and the Microsoft .NET Framework

exam
Watch

For the latest information on available exams, visit www.microsoft.com/traincert. Exams are subject to change without notice, so be sure to check this site frequently as you prepare for your exam.

Exam Credit

When you pass Exam 70-310, you immediately achieve the status of Microsoft Certified Professional (MCP) and earn credit toward either the MCAD or MCSD certification:

- **Core credit** toward MCSD (Microsoft Certified Solutions Developer) certification.
- **Core credit** toward MCAD (Microsoft Certified Application Developer) certification.

Skills Being Measured

You can view the complete set of skills being measured at the MCSD web site at www.microsoft.com/traincert/mcp/mcsd/requirements.asp. According to Microsoft, the following is a quick summary of what you'll be faced with on the exam.

Creating and Managing Microsoft Windows® Services, Serviced Components, .NET Remoting Objects, and XML Web Services

- Create and manipulate a Windows service.
- Write code that is executed when a Windows service is started or stopped.
- Create and consume a serviced component.
- Implement a serviced component.

- Create interfaces that are visible to COM.
- Create a strongly named assembly.
- Register the component in the global assembly cache.
- Manage the component by using the Component Services tool.
- Create and consume a .NET Remoting object.
 - Implement server-activated components.
 - Implement client-activated components.
 - Select a channel protocol and a formatter. Channel protocols include TCP and HTTP. Formatters include SOAP and binary.
 - Create client configuration files and server configuration files.
 - Implement an asynchronous method.
 - Create the listener service.
 - Instantiate and invoke a .NET Remoting object.
- Create and consume an XML web service.
 - Control characteristics of Web methods by using attributes.
 - Create and use SOAP extensions.
 - Create asynchronous Web methods.
 - Control XML wire format for an XML web service.
 - Instantiate and invoke an XML web service.
- Implement security for a Windows service, a serviced component, a .NET Remoting object, and an XML web service.
- Access unmanaged code from a Windows service, a serviced component, a .NET Remoting object, and an XML web service.

Consuming and Manipulating Data

- Access and manipulate data from a Microsoft SQL Server™ database by creating and using ad hoc queries and stored procedures.
- Create and manipulate DataSets.
 - Manipulate a DataSet schema.

- Manipulate DataSet relationships.
- Create a strongly typed DataSet.
- Access and manipulate XML data.
 - Access an XML file by using the Document Object Model (DOM) and an XmlReader.
 - Transform DataSet data into XML data.
 - Use XPath to query XML data.
 - Generate and use an XSD schema.
 - Write a SQL statement that retrieves XML data from a SQL Server database.
 - Update a SQL Server database by using XML.
 - Validate an XML document.

Testing and Debugging

- Create a unit test plan.
- Implement tracing.
 - Configure and use trace listeners and trace switches.
 - Display trace output.
- Instrument and debug a Windows service, a serviced component, a .NET Remoting object, and an XML web service.
 - Configure the debugging environment.
 - Create and apply debugging code to components and applications.
 - Provide multicultural test data to components and applications.
 - Execute tests.
- Use interactive debugging.
- Log test results.
 - Resolve errors and rework code.
 - Control debugging in the Web.config file.
 - Use SOAP extensions for debugging.