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MCAD/MCSD 学习指南

MICROSOFT CERTIFIED APPLICATION DEVELOPER
& MICROSOFT CERTIFIED SOLUTION DEVELOPER

— Visual Basic .NET Web Applications

(Exam 70-305) (英文版)

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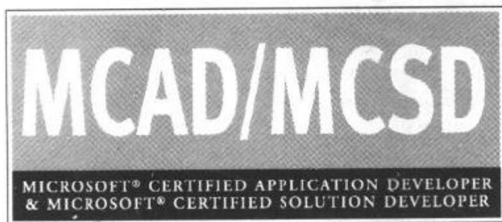
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[美] Wayne Cassidy 著
David Shapton

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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 70-305 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。

To my wife and best friend, Heidi.—Wayne

To Shauna, my wife, for her love, encouragement, and understanding.—David

ABOUT THE AUTHORS

Wayne Cassidy is President and owner of a small consulting firm that specializes in the design and development of scientific and statistical software. To keep himself sane and sociable he also teaches computer programming and software design in the corporate arena and develops courseware for this purpose. Wayne's areas of expertise include Object-Oriented Analysis and Design, C/C++, CORBA, Visual C++ with MFC, COM/DCOM/COM+, Visual Basic, Java, Web application development, and he has a special interest in cross-platform computing. He presently resides in Ottawa, Ontario, Canada, with his wife, Heidi, and their cat Max. Wayne graduated with high honors from Carleton University with a BSc in Neuroscience, concentrating in Molecular Neurobiology.

David Shapton, MCSD, MCT, and CTT+, is Vice President of SciStat, Inc., a software development and a training company in Ottawa, Ontario. Although first introduced to computer programming in the mid-1970s, he didn't make it his career until 1984. Since then he has been involved in many aspects of the business, including application development, project management, training, and writing. David lives in Kanata, Ontario, with his wife, Shauna, and their three children, Krista, Olivia, and Mitchell.

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—Wayne

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—David

PREFACE

This book was written to assist you in preparing for and passing the Developing and Implementing Web Applications with Microsoft Visual Basic .NET and Microsoft Visual Studio .NET Exam 70-305. 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 discussions 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 the 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, reinforce key points, and 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 Watches** These are tips from our expert authors 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 read them, so that you increase your exposure and familiarity to the .NET Framework.
- **On the Jobs** Designed to let you benefit from our authors' experience, this element provides insights into the practical application of the theories presented in the text.

exam
Watch

on the
Job

- **Scenario and Solutions** This element provides you with common situations you may encounter on the job, and provides you with quick solutions.

SCENARIO & SOLUTION	
How do I validate a field value based on the value on another field?	Use the CompareValidator control. Set the ControlToCompare to the field value you are checking and the Operator to specify the condition.
How do I pop up a message box to notify the user that there are input errors?	Use a ValidationSummary control and set the ShowMessageBox property to true.
How do I test for a required input and a range check on a field?	Use both a RequiredFieldValidator and a RangeValidator control for the field.

- **The Certification Summary** This is a general review of the material that was presented in the chapter. The summary provides 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, and 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.
 - **Lab Questions** Lab questions are designed to give you practice in evaluating a scenario and developing the appropriate solution. You'll find these throughout the text.

On the CD-ROM

This book includes a CD-ROM with simulation assessment and training software. Be sure to look through the software—there is more than one hour of interactive instructional video training, hundreds of practice test questions found only using the CD-ROM, and CertCam audio-visual demonstrations of exercises from the book. For more information about the CD-ROM, please see Appendix A.

INTRODUCTION

Welcome to *MCAD/MCSD Visual Basic .NET Web Application Study Guide (Exam 70-305)*. The authors have written this book to help you prepare for the **Developing and Implementing Web Applications with Microsoft Visual Basic .NET and Microsoft Visual Studio .NET** 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 (Microsoft Certified Application Developer) or MCSD (Microsoft Certified Solution Developer)? 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, then add exams until reaching 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, back-end data services, or work in teams developing enterprise applications.

Comparatively, candidates for the MCSD certification 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 next.

MCSD Core Exams
<p>Solution Architecture Exam (Required) Exam 70-300: Analyzing Requirements and Defining .NET Solution Architectures</p>
<p>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</p>
<p>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</p>
<p>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</p>

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 only requires three core exams and one elective, and permits the use of some exams as either core or elective credit.

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

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 70-234** Designing and Implementing Solutions with Microsoft Commerce Server 2000

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

Exams 70-305, 70-306, 70-310, 70-315, 70-316, 70-320

exam

Watch

For the latest information on available exams, visit www.microsoft.com. 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 70-305, you immediately achieve the status of Microsoft Certified Professional (MCP), and earn credit toward either the MCAD for .NET or MCSD for Microsoft .NET certification:

- **Core credit** toward MCSD (Microsoft Certified Solution Developer) certification
- **Core or Elective 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. The following is a quick summary of what you'll be faced with on the exam, according to Microsoft:

Create User Services

- Create ASP.NET Pages.
- Add and set directives on ASP.NET pages.
- Separate user interface resources from business logic.
- Add Web server controls, HTML server controls, user controls, and HTML code to ASP.NET pages.
- Set properties on controls.
- Load controls dynamically.
- Apply templates.
- Set styles on ASP.NET pages by using cascading style sheets.
- Instantiate and invoke an ActiveX control.
- Implement navigation for the user interface.
- Manage the view state.
- Manage data during postback events.
- Use session state to manage data across pages.
- Validate user input.
- Validate nonLatin user input.

- Implement error handling in the user interface.
- Configure custom error pages.
- Implement Global.asax, application, page-level, and page event error handling.
- Implement online user assistance.
- Incorporate existing code into ASP.NET pages.
- Display and update data.
- Transform and filter data.
- Bind data to the user interface.
- Use controls to display data.
- Instantiate and invoke a Web service or component.
- Instantiate and invoke a Web service.
- Instantiate and invoke a COM or COM+ component.
- Instantiate and invoke a .NET component.
- Call native functions by using platform invoke.
- Implement globalization.
- Implement localizability for the user interface.
- Convert existing encodings.
- Implement right-to-left and left-to-right mirroring.
- Prepare culture-specific formatting.
- Handle events.
- Create event handlers.
- Raise events.
- Implement accessibility features.
- Use and edit intrinsic objects. Intrinsic objects include response, request, session, server, and application.

Create and Manage Components and .NET Assemblies

- Create and modify a .NET assembly.
- Create and implement satellite assemblies.
- Create resource-only assemblies.
- Create Web custom controls and Web user controls.

Consume and Manipulate Data

- Access and manipulate data from a Microsoft SQL Server database by creating and using ad hoc queries and stored procedures.
- Access and manipulate data from a data store. Data stores include relational databases, XML documents, and flat files. Methods include XML techniques and ADO.NET.
- Handle data errors.

Test and Debug

- Create a unit test plan.
- Implement tracing.
- Add trace listeners and trace switches to an application.
- Display trace output.
- Debug, rework, and resolve defects in code.
- Configure the debugging environment.
- Create and apply debugging code to components, pages, and applications.
- Provide multicultural test data to components, pages, and applications.
- Execute tests.
- Resolve errors and rework code.

Deploy a Windows-Based Application

- Plan the deployment of a Windows-based application.
- Plan a deployment that uses removable media.
- Plan a Web-based deployment.
- Plan the deployment of an application to a Web garden, a Web farm, or a cluster.
- Create a setup program that installs a Web application and allows for the application to be uninstalled.
- Deploy a Web application.
- Add assemblies to the Global Assembly Cache.

Maintain and Support a Web Application

- Optimize the performance of a Web application.
- Diagnose and resolve errors and issues.

Configure and Secure a Web Application

- Configure a Web application.
- Modify the Web.config file.
- Modify the Machine.config file.
- Add and modify application settings.
- Configure security for a Web application.
- Select and configure authentication type. Authentication types include Windows Authentication, None, Forms-based, Microsoft Passport, Internet Information Services (IIS) authentication, and custom authentication.
- Configure authorization. Authorization methods include file-based methods and URL-based methods.
- Configure role-based authorization.
- Implement impersonation.
- Configure and implement caching. Caching types include output, fragment, and data.
- Use a cache object.
- Use cache directives.
- Configure and implement session state in various topologies such as a Web garden and a Web farm.
- Use session state within a process.
- Use session state with session state service.
- Use session state with Microsoft SQL Server.
- Install and configure server services.
- Install and configure a Web server.
- Install and configure Microsoft FrontPage Server extensions.

Performance-Based vs. Knowledge-Based Questions

The exam questions fall into two broad categories: knowledge-based and performance-based. Knowledge-based questions are designed to test your knowledge of specific facts. Performance-based questions are designed to measure your ability to perform on the job by presenting examples of situations and scenarios a developer might encounter in the real world.

Finally, be aware that your exam may consist of several different types of items, as summarized here:

- **Free Response items** Traditional multiple-choice items, designed to test your basic knowledge of facts.
- **Case Study-based items** Designed to simulate which situations developers actually encounter on the job, these questions test your ability to analyze information and make decisions.

You can, and should, get some practice with different types of questions prior to taking the exam. Sample questions are available for download from the Exam and Testing Procedures' Web page at www.microsoft.com/traincert/mcpexams/faq/procedures.asp.

Study Strategies

Exam 70-305 will test your overall understanding of Visual Basic .NET in a Web environment. Experience is the best teacher, so be sure to work through the exercises and labs as you read through the text.

Take the self tests at the ends of the chapters and immediately review any material that you have difficulty with. Continue to review the material as you progress through the book.

Use the test engine on the CD-ROM. This engine was developed to help give you the experience of facing a certification challenge in a setting similar to the actual testing scenario. Being familiar with the process will let you focus on the exam rather than the environment.

Signing Up

To schedule your exam, call any Sylvan Prometrics or VUE center. Online registration is also available through the Register for an Exam Web page at www.microsoft.com/traincert/mcpexams/register. This site gives you information about the registration process and locations of testing centers near you.