
PDSA

Fundamentals of ADO.NET

Fundamentals of ADO.NET

By: Paul D. Sheriff

With examples in C# and VB.NET

4th Edition – December 2012
Published By: PDSA, Inc.

ISBN: 978-0-9816946-0-3

Copyright © 2006-2012, PDSA, Inc.
All Rights Reserved Worldwide

Courseware Design: Paul D. Sheriff

Technical Editors: Paul D. Sheriff

Ken Getz

Bruce Jones

Every effort has been made to supply complete and accurate information. However, PDSA, Inc. assumes no responsibility for its use, nor for any infringement of the intellectual property rights of third parties which would result from such use.

© 2006-2012 PDSA, Inc.

All rights reserved worldwide. No part of this publication may be stored in a retrieval system, transmitted, or reproduced in any way, including but not limited to photocopy, photograph, magnetic or other record, without the prior agreement and written permission of the publisher.

Printed in the United States of America

Table of Contents

Table of Contents	3
Acknowledgements	5
Introduction.....	5
Benefits of Reading this Book	6
Prerequisites.....	6
Assumptions	6
Technical Support.....	6
Installation	7
If you have Problems Installing the Sample	7
About Paul D. Sheriff	8
Chapter 1	1-1
Introduction to ADO.NET.....	1-1
Getting Started with ADO.NET	1-1
Using ADO.NET Classes	1-3
ADO.NET Namespaces	1-3
Getting Started with ADO.NET	1-5
Using a DataAdapter to Fill a DataSet.....	1-5
Using a DataReader Object	1-6
Benefits of ADO.NET.....	1-9
Performance	1-9
Scalability.....	1-9
Interoperability	1-10
Programmability	1-10
Summary	1-12
Chapter 2	2-1
ADO Data Binding.....	2-1
ADO.NET Data Binding	2-1
Binding Data to a GridView.....	2-2
Create the Sample Page.....	2-2
Configure the Data.....	2-3
Create New Connection	2-4
Select Table to Bind.....	2-7
Try It Out.....	2-8
Using a Parameterized Query.....	2-9
Add a WHERE Clause	2-9
Summary	2-12

Chapter 3.....	3-1
Connection and Command Objects.....	3-1
The ADO.NET Connection Class.....	3-1
The Connection Sample.....	3-2
Dealing with Connection Strings	3-2
The App.Config Class	3-3
Opening a Connection	3-4
Using the SqlError Exception Object.....	3-6
Connecting with Events (VB.NET).....	3-8
Connecting with Events (C#).....	3-9
The ADO.NET Command Class	3-11
Inserting Data using Command Object.....	3-11
Updating Data using Command Object	3-15
Deleting Data using Command Object	3-17
Transactions in ADO.NET	3-19
Summary.....	3-23
Chapter 4.....	4-1
DataTables and DataSets	4-1
Using ADO.NET DataTables and DataSets.....	4-1
Why Would I Want to Do This?	4-1
Loading a DataSet object	4-2
Loading a DataTable Object	4-3
Multiple Result Sets with DataSet.....	4-4
Using the DataView Object.....	4-6
Using the Select Method.....	4-7
Build a DataTable Manually.....	4-10
Read an XML File into a DataSet	4-12
Add/Edit/Delete Sample.....	4-14
Summary.....	4-15
Chapter 5.....	5-1
The DataReader Class.....	5-1
The ADO.NET DataReader	5-1
Loading a List Box	5-1
Looping Through a DataReader	5-4
Multiple Result Sets.....	5-6
Summary.....	5-9
Chapter 6.....	6-1

Using Stored Procedures	6-1
Executing Stored Procedures	6-1
Why Use Stored Procedures?	6-1
Stored Procedure with No Parameters	6-2
Stored Procedure with Input Parameters	6-4
Stored Procedure with Output Parameters	6-6
Summary	6-11

Acknowledgements

We would like to thank a few people who helped us get this book put together. There have been many people that have contributed to this and they deserve some of the credit for making this a reality.

- The staff at PDSA, Inc. for helping review and tech edit most of these chapters.
- Ken Getz, as usual, was a huge help in this book.
- The input of several of our fellow instructors including Mike Groh, Tom Howe, Bruce Jones and Scott Barker.

Introduction

This book is designed for anyone who wants to learn how to use ADO.NET to access data in databases. Throughout this book you will be introduced to the concepts of the data handling using the Microsoft .NET Framework. Emphasis will be on good programming standards and practices. In this book you will learn the following:

- Using the Connection Class
- Using the Command Class
- Using DataSets
- Using DataTables
- Using Parameters

- Using Stored Procedures

Benefits of Reading this Book

The major benefit you will derive from reading this book is that you will be shown how to use ADO.NET to manipulate data in OLE DB and SQL Server databases. After reading this book you will be able to retrieve data, insert, update, and delete data from relational databases using ADO.NET.

Prerequisites

This book is designed for programmers who already have some experience with VB.NET or C#. You should also be familiar with relational database concepts, and have access to the Northwind sample database that comes with SQL Server or Access. You must be familiar with Windows 98, 2000, XP, 2003, Vista, Windows 7 or later, and have access to one of these operating systems to effectively use this book.

Assumptions

You will need several tools at your disposal so you can try out the many exercises contained in this book. Below is a list of the tools that you should have on your computer:

- Microsoft SQL Server 2008 or later
- The Northwind Sample database
- Microsoft Windows
- Microsoft .NET CLR Framework SDK
- Microsoft Visual Studio 2010 or later

Technical Support

Because of the complexity of .NET software development, PDSA, Inc. does not provide free technical support related to the use of the material in this e-book. Technical support is available for problems with installation of the samples that are a part of this book but only through email, please do not call.

<p>TIP: It is strongly recommended that you read this book thoroughly before emailing us for technical support.</p>
--

For technical support please send an email to Books@pdsa.com.

Installation

This book comes with an MSI file that you download from the PDSA, Inc. web site. This MSI file will install all of the samples for this book. There is no need to create any virtual directories for the samples, because they use the file system web approach.

URL: www.pdsa.com/Downloads

Just follow the instructions on the screen to download the samples.

If you have Problems Installing the Sample

Below is a list of suggestions to ensure your installation of the sample files for the book is successful. Please read these carefully and follow each one for best results.

1. You must be running a supported ASP.NET 4.0 operating system
2. You must be running VS.NET 2010
3. You must have administrator rights for installation
4. Ensure that you can create an ASP.NET application using VS.NET 2010
5. Shut down VS.NET 2010 prior to doing the installation

About Paul D. Sheriff

Paul is the CEO and President of PDSA, Inc., a Microsoft Partner in Southern California. PDSA, Inc. has provided customers with high quality custom software, training, and architecture services since 1991. Paul also serves as the Microsoft Regional Director for Southern California.

Paul has over twenty-five years of experience architecting information systems and his expertise is in much demand from companies such as Kawasaki, Sunkist, Microsoft, Rockwell, American Express, J.D. Powers & Associates and many others. Paul has been helping companies architect .NET applications and create application frameworks.

Over the years Paul has written over 233 articles for many different publications. Paul has authored over 14 books on topics ranging from Visual Basic, SQL Server to .NET technologies. Paul speaks at many different conferences around the world including Microsoft Tech-Ed, VSLive, DevConnections, DevIntersections, MSDN Events and local Microsoft events.

PDSA, Inc. is a full-service consulting company offering custom software development, architecture services, consulting, mentoring, training and more. Contact PDSA at (714) 734-9792.

Blog: <http://weblogs.asp.net/psheff>

Twitter: <http://www.twitter.com/pdsainc>

Facebook: <http://www.facebook.com/pdsapaulsheff>

E-mail: Psheff@pdsa.com

Inner Circle: <http://www.PaulSheriffInnerCircle.com>