

Pro SQL Server 2008 Service Broker



Klaus Aschenbrenner

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ISBN-13 (pbk): 978-1-59059-999-0

ISBN-10 (pbk): 1-59059-999-3

ISBN-13 (electronic): 978-1-4302-0865-5

Printed and bound in the United States of America 9 8 7 6 5 4 3 2 1

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Distributed to the book trade worldwide by Springer-Verlag New York, Inc., 233 Spring Street, 6th Floor, New York, NY 10013. Phone 1-800-SPRINGER, fax 201-348-4505, e-mail orders-ny@springer-sbm.com, or visit <http://www.springeronline.com>.

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*For Karin. Every day that starts with you turns out to be a great day.
I will always love you.*

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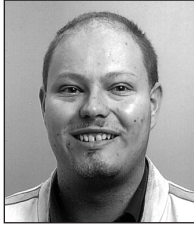
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About the Author



KLAUS ASCHENBRENNER works as a software architect for ANECON (a Microsoft Gold Certified Partner for Data Management and ISV/Software Solutions) in Vienna, Austria. Klaus has worked with the .NET Framework and especially with SQL Server 2008 from the very beginning. In 2004 and 2005, Klaus was honored with Microsoft Most Valuable Professional (MVP) awards for his tremendous support of the .NET community. He currently travels around the world teaching clients the core concepts of SQL Server 2008 and distributed application programming based on the .NET Framework 3.5. Klaus is also a regular speaker at international developer conferences like SQLPASS, DevTeach, DevWeek, and SQLdays. For further information on Klaus, see his home page at <http://www.csharp.at> and on his weblog at <http://www.csharp.at/blog>.

About the Technical Reviewer

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Acknowledgments

It's 9:00 p.m., and I'm sitting here in our new house in Vienna on a rainy evening writing this introduction. When I think back to when I wrote the introduction for the 2005 edition of this book, it was around 8:30 p.m., and I was sitting in a train between Vienna and Linz traveling to a customer. Since then, so many personal things have changed. First of all, we (Karin and I) became engaged and we have successfully completed the construction of our own house, which we started in March 2007 after I submitted the last reviewed chapters of my book *Pro SQL Server 2005 Service Broker*. We moved into the house in October last year, after a construction period of just seven months—this was a real challenge, but we've mastered it without big problems!

In the meantime, I've also presented so many sessions about SQL Server- and .NET-related development topics at many international conferences around the world that I lost count of them all. I've attended great conferences like the annual SQLPASS conference in the United States, the DevTeach conference in Canada, and the DevWeek conference in London, as a speaker. It's always great to speak to an international audience, tell them some stories about Austria, and teach them the insights of SQL Server 2008 and of the .NET Framework 3.5. I've also met so many new friends around the globe like Itzik Ben-Gan, Peter DeBetta, Adam Machanic, Fernando Guerrero, Dejan Sarka, Paul Nielsen, Rick Heiges, Joe Webb, Roman Rehak, Jean Rene Roy—the list could go on indefinitely!

Writing *Pro SQL Server 2008 Service Broker* was on the one hand very time-intensive work, because I had to use CTP versions of SQL Server 2008, and I think you know about the quality of CTP versions... But on the other hand it was also great work, because I had the chance to include so many new real-world examples in this book, examples that I've worked on during the last 18 months while consulting for several clients on SQL Server and Service Broker.

Since November 2007 when I started writing this book, a lot of time has passed, and many people have supported me in writing this book. I want to mention and thank the people around the world who helped me with their passion to put together this book on Service Broker. First of all, I want to thank my acquisition editor, Jonathan Gennick, for his support and input on this great book project.

As in the previous edition, Fabio Ferracchiati acted as my technical reviewer. Fabio, thanks for your detailed and great technical reviews of each chapter. I know I've made your life very hard during this time, but we finally produced the greatest book about Service Broker. Thanks for your help on this!

During the writing, I also got great support from Remus Rusanu, who has formerly worked on the Service Broker team in Redmond. Remus also acted as a guest author for this book. I invited Remus to write Chapter 12, where he talks about Service Broker Administration. Remus, thanks for your support and your excellent chapter on Service Broker Administration. Nobody else in the world could have written about this topic in a better way than you—thanks for this! Furthermore, I also want to mention Rick Negrin from the Service Broker team, who also provided me with additional information about Service Broker. Rick also introduced me to the other Service Broker team members. And it's great

to see that new Service Broker team members are working through my book to get started with Service Broker.

A great book can't be made without a great publisher. The team at Apress helped me a lot to put everything together to write the best available book on Service Broker. First of all, there is my project manager, Tracy Brown Collins. Tracy, thanks for your help, for your direction, and for your easy-going project plan. I've enjoyed working for you.

A big thank-you also goes to Liz Welch for her help on the copy edits, and to Katie Stence, who acted as my production editor. Thanks for all your help, and I've enjoyed the time with both of you.

Last but not least, I have to thank my family. A big thank-you goes to my parents, Herbert and Dagmar. You were the driving factor in the last 15 years behind my passion for computers, computers, and computers. You supported me in every direction to move my career forward to the point where I'm standing now. Thanks for everything!

Finally, there's Karin, my girlfriend and the most important person in my life. Karin, I'm very, very amazed at how easy it is for you when I'm working on such time-intensive things like this book. There were so many evenings, weekends, and even weeks when I had no time, because my work drove my life. But you handled those days so easily, so that I could concentrate on the book. Thanks for your love, your support, your passion, and your easy understanding of the endless nights spent working on this book. Thanks for everything and especially for your love. I dedicate this book to you. I will always love you.

Introduction

SQL Server 2008 Service Broker is an asynchronous messaging framework directly built into SQL Server 2008. In this book I show how you can use the power of Service Broker to program asynchronous, message-based, distributed, secure, reliable, and scalable database applications.

Who This Book Is For

This book is for database developers and application developers who want to learn about Service Broker and programming message-based applications with SQL Server 2008.

How This Book Is Structured

The book is divided into two parts:

Part 1: The Service Broker Programming Model: The first part of this book introduces you to the general concepts and programming the APIs of Service Broker. After reading through this part, you'll be able to implement asynchronous, distributed, reliable, and secure Service Broker applications.

Part 2: Advanced Service Broker Programming: The second part of the book explores the more advanced Service Broker features, including the internals of Service Broker and how to scale out Service Broker applications to any required size. I also discuss Service-Oriented Database Architecture (SODA), where Service Broker acts as one of the key pillars.

The first part of the book is composed of the following chapters:

Chapter 1: Fundamentals of Message-Based Processing: This chapter introduces you to the core concepts of message-based programming, as well as to some of the fundamental issues you'll encounter in this programming approach. Once you understand the theory, you'll examine how to work through issues with Service Broker in the next chapter.

Chapter 2: Introducing Service Broker: This chapter introduces Service Broker from an architectural point of view and explains how Service Broker solves the problems discussed in Chapter 1.

Chapter 3: Service Broker in Action: This chapter teaches you how to program your first message-based application with Service Broker.

Chapter 4: Service Broker Activation: Now that you know the fundamentals of Service Broker, this chapter introduces you to the activation feature of Service Broker, which allows you to process incoming Service Broker messages automatically.

Chapter 5: Service Broker with Managed Code: This chapter shows you how you can use the advantages of the SQLCLR to implement Service Broker applications directly with managed code.

Chapter 6: Locking and Transaction Management: As soon as you want to implement asynchronous, scalable, message-based applications, you must take care of locking strategies. This chapter introduces the Service Broker locking functionalities and also shows you how to write highly efficient Service Broker applications through different transaction-management strategies.

Chapter 7: Distributed Service Broker Applications: This chapter, which closes the first part of this book, teaches you how to distribute Service Broker applications to physically different machines.

The second part of the book is composed of the following chapters:

Chapter 8: Advanced Distributed Service Broker Programming: This chapter goes into the more technical details of distributed Service Broker applications and shows which options are available for your applications.

Chapter 9: Service-Oriented Database Architecture: Service-Oriented Database Architecture (SODA) is a new concept propagated by Microsoft where the database server—in this case, SQL Server 2008—acts as a full-blown application server. SODA consists of several pillars, and as you'll see, Service Broker is one of those key pillars.

Chapter 10: Real-World Application Scenarios: This chapter details different real-world application scenarios where Service Broker can offer huge benefits and lead to better scalability. This chapter will also introduce conversation priorities to you, a new feature of SQL Service Broker 2008. Finally I've also added an application scenario that shows you how to combine the Windows Workflow Foundation programming model with Service Broker.

Chapter 11: High Availability and Scalability: SQL Server 2008 is all about high availability and scalability. One of the best things about Service Broker is that you can use SQL Server's high-availability and scalability features directly for your Service Broker applications without any effort. In this chapter you'll also find a section about data-dependent routing, which is another scale-out technology available with Service Broker.

Chapter 12: Administration: In this final chapter Remus Rusanu teaches you how you can administer your Service Broker applications and which features are provided by Service Broker in this area.

Prerequisites

You will need SQL Server 2008 Standard Edition/Developer Edition and Visual Studio 2008 Standard Edition.

Downloading the Code

The source code for this book is available to readers at www.apress.com in the Source Code/Download section of this book's home page. Please feel free to visit the Apress website and download all the code there. You can also check for errata and find related titles from Apress.

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