

Teach Yourself Oracle 8 In 21 Days

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Foreword

"Enabling the information age" is the slogan upon which Oracle is founded, but it is more than a slogan to engineers who dedicate their knowledge and experience to the task of delivering this information with accuracy and speed. In this age of information, just getting the data is not enough. The data that is so vital to business must be dependable, accurate, and delivered as quickly as possible.

Two such engineers I have worked with in this endeavor are Edward T. Whalen and Steve Adrien DeLuca. Edward has won his mastery in the field of performance benchmarks and system tuning. A former employee of COMPAQ Computers and currently CEO of Performance Tuning Corp., Edward has held many benchmark records for the highest degree of performance from the Transaction Processing Performance Council, which is responsible for creating and maintaining industry-standard benchmarks. Edward has also published a book on Oracle tuning, which has given him well-deserved notoriety.

Steve is an Architect Engineer in the COMPAQ products division of Oracle Corporation. Steve holds the distinction of being the co-inventor of the Oracle System Sizer (patent pending), which has won him much acclaim in the field of sizing and capacity planning.

Together, Edward and Steve have delivered lectures in the field of performance tuning, sizing, and capacity planning to audiences over the world. They have also performed benchmarks for such customers as Boeing Aircraft with more than satisfactory results. It is only natural that they would collaborate on this book. I look forward to working with Edward and Steve for many years to come, breaking new ground in the field of performance.

Richard French Vice President Enterprise Platforms Division Oracle Corporation

Acknowledgments

Edward Whalen

Writing the acknowledgments for a book is difficult; I owe my thanks not only to those who worked on the book itself, but to those friends and family who supported and encouraged me to move the book forward. I am always afraid I have missed someone; if I have, I apologize.

I would like to thank Rosemarie Graham, Steve Straiger, Marla Reece-Hall, Kim Hannel, and especially Kate Shoup Welsh at Sams Publishing for their help in the development of the book. The editorial staff at Sams is excellent and absolutely great to work with. Without their help, this book could not have been published. I would also like to thank Kelly Leigh for doing a great job of technical editing. Lastly I would like to thank Erika Millen for creating the index for this book.

I would especially like to thank my good friend Steve DeLuca for his participation in this book. I would also like to thank Richard French for contributing a foreword to this book.

I would like to thank not only the people who have directly influenced this book and helped make it a reality, but those who have indirectly influenced it as well. These people are Bob Nissen, Thomas Cox, Keith Yedlin, Mike Brey, and Eric Speed. I would also like to thank some of the people who have influenced me in my endeavors and have taught me over the years: Lorna Livingtree and Brent Schroeder. Some other people who have been inspired me are Marci Frohock and Bryon Georgson.

In my previous book I failed to mention someone without whom none of this would be possible: Larry Ellison. I apologize. Larry Ellison's hard work made Oracle what it is today.

Writing a book involves a lot of time and effort. I would like to thank my wife, Felicia, for putting up with the sacrifices necessary to write this book as well as for her help in finishing the book.

Steve Adrien DeLuca

I would like to take this opportunity to thank the great management staff at Oracle: people like Jerry Baker, Gary Bloom, Jerry Held, Richard French, Bonnie Crater, Sylvia Cummings, Charles Weiss, David Appelbaum, and of course, Larry Ellison, for letting me develop my ideas; talented database engineers such as Andrew Rist for co-inventing Oracle System Sizer (patent pending) with me; and Mike Brey, Bob Nissen, Ethan Berry, John Viguerie, Jose Sanchez, Jeff Plank, Theresa Burghgraef, Fred Dambrosio, Bryon Georgson, Tamar Sofer-Rothenberg, Vicky Owens, and others too numerous to mention for helping me prove the theories.

What can one say about close friends such as Edward Whalen, who invited me to contribute to this writing, or family like my wife, Jean, and daughter Tina, who have always been there to support me. A special thanks to the folks at COMPAQ Computer such as Ronnie Ward, Keith Carlson, Douglas Mackbee, and Mike Nikolaiev, for letting me tinker around their labs.

About the Authors

Lead Author

Edward Whalen is president and CEO of Performance Tuning Corporation (www.perftuning.com), a consulting company specializing in database performance, administration, and backup/recovery solutions. He has had extensive experience in database system design and tuning for optimal performance. Mr. Whalen has also written another Sams book, *Oracle Performance Tuning and Optimization*. He is recognized as a leader in Oracle performance tuning and optimization.

He is a representative on the Transaction Processing Performance Council, which is responsible for creating and maintaining industry-standard database benchmarks. As part of this council, he has participated in the development of several TPC benchmarks.

Mr. Whalen currently resides in Cypress, Texas, with his wife, Felicia; their Border collies, Pierce (Dash), Chip, Teller, and Ty; their Great Pyrenees, Shasta; and their cats. He is active in many dog-related activities, including dog agility. He is also a certified EMT and volunteers with the local emergency ambulance service, Cypress Creek EMS, where he is a regular on Medic-53, Medic-54, and Medic-55.

Contributing Author

Steve Adrien DeLuca has been an architect engineer developing performance tools at Oracle Corporation since 1994. Mr. DeLuca co-invented the Oracle System Sizer (patent pending) and has been developing performance tools and lecturing about them around the world since 1984. Prior to working at Oracle Corporation, Mr. DeLuca served as a performance engineer specializing in sizing and capacity planning for companies such as DEC, Tandem, and Apple, and for organizations such as the U.S. Air Force.

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As the team leader of the group that created this book, I welcome your comments. You can fax, e-mail, or write me directly to let me know what you did or didn't like about this book--as well as what we can do to make our books stronger. Here's the information:

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Introduction

I have worked with Oracle for many years. Every time a new version is released or a new problem crops up, I am rejuvenated; I become excited about working with Oracle again. I want to share this enthusiasm with you, and I hope that after you become familiar with Oracle, more and more aspects of the Oracle RDBMS will interest you. The most important thing is that you enjoy what you are doing; I hope that you enjoy working with Oracle as much as I do.

The Oracle RDBMS is an enormous environment with unlimited potential. When you start working with Oracle, you might find it overwhelming. Don't give up; you will see how the different components work together as you learn about the Oracle RDBMS. Rarely do I undertake a project without learning something new about Oracle.

Who Should Read This Book?

This book is designed for inexperienced Oracle users. Experienced Oracle DBAs will likely find this book too elementary. Most of the lessons are designed to step the reader through specific administrative and user tasks.

Required Software

To be able to work through the examples in this book, you must have the following software:

- Oracle 8.0.3 or later
- Oracle Enterprise Manager
- Microsoft Windows NT 4.0 or other OS

Although many of the examples and exercises in this book are geared toward Microsoft Windows NT, you need not run NT. If your system runs UNIX, you will be fine.

How to Use This Book

The best way to use this book is to read each lesson, then practice the techniques and tasks outlined in that lesson. Each lesson covers a single topic, so some lessons might be longer than others. If you complete one lesson per day, you can easily complete the full course in three weeks.

At the end of each lesson, you'll find a series of questions and answers. These questions are designed to point out some of the key concepts that were covered in the lesson. Following the Q&A section, you'll find a series of quiz questions that focus on techniques and tasks covered in the lesson. Each lesson also includes a series of exercises that are intended to familiarize you with some of the key tasks covered in that lesson.

Conventions Used in This Book

New Term: New terms appear in *italic*, and are accompanied by a new term icon.

NOTE: Notes explain interesting or important points that can help you understand concepts and techniques.

TIP: Tips are pieces of information that help you in real-world situations. Tips often provide shortcuts or information to make a task easier or faster.

WARNING: Warnings provide information about detrimental performance issues or dangerous errors. Pay careful attention to warnings.


Working with Code and Code Conventions

INPUT: The input icon indicates code that you type.

OUTPUT: The output icon indicates the result of running a piece of code.

All code in the listings appears in `monospace`. Many code-related terms within the text also appear in `monospace`. Placeholders in code or in text appear in *italic monospace*.

When a line of code is too long to fit on one line of this book, it is broken at a convenient place and

continued to the next line. A code continuation character  precedes the continuation of a line of code. (You should type a line of code that has this character as one long line without breaking it.)

ANALYSIS: Paragraphs that begin with the analysis icon explain the preceding code example.

The syntax icon identifies syntax statements.

Throughout this book there will be references to SQL statements and Oracle administration statements. These will be distinguished in the following manner:

- Any Oracle or SQL keyword that must be typed exactly will be displayed in uppercase letters, as in `SELECT`. This syntax does not necessarily require uppercase characters in its execution, but will be displayed that way for consistency.
- Statements that can be or need to be altered for your own particular configuration are indicated by italics, as in `SELECT * FROM table_name`. This would indicate that `table_name` should be substituted with your own table's name.
- The use of braces indicates a choice of several optional variables. An example of this would be the following SQL statement: `SELECT [USER_NAME or USER_ID] FROM table_name ;`. This would indicate that the keywords `USER_NAME` or `USER_ID` must be used in that SQL query.
- The use of brackets indicates a choice of various optional parameters. In this case, the parameter may be used or omitted as necessary. An example of this is the SQL statement `SELECT USER_NAME, GROUP_NAME FROM table_name [ORDER BY GROUP_NAME] ;`.

Author's Note

Most of this book was written before the production version of Oracle8 was available. I have tried to change any example or explanation of a task that has changed since Oracle8 beta 2. I believe I have made all of these corrections, but if you see a figure or an explanation of a task that is not quite correct, it is because the original section was based on that beta release.

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- Week 1 At a Glance -

You will spend Days 1-3 in the introductory section of the book, where the foundation for all subsequent lessons is built. This section begins with an introduction to Oracle and database concepts. Here you will learn a bit of Oracle history as well as read an explanation of terms and concepts. Subsequent lessons contain an introduction to the Oracle8 architecture. Understanding the architecture and operation of Oracle8 can offer great insight into why many DBA actions are taken. A tutorial on how to install Oracle8 will also be provided in this section. Finally, my good friend Steve DeLuca, world-renowned capacity planning expert from Oracle, will teach you how to size a system and plan for future growth.

Managing Database Storage

Days 4-7 cover topics concerning management of the Oracle database (including extensive use of Enterprise Manager), databases and datafiles, and tablespaces. Coverage regarding managing database storage continues into week 2.

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