

# 100%

ONE HUNDRED PERCENT

COMPREHENSIVE  
AUTHORITATIVE  
WHAT YOU NEED

ONE HUNDRED PERCENT

**Master** the material  
for the **Oracle8i DBA**  
**Exam 1Z0-023**

**Test** your knowledge  
with assessment  
questions, scenarios,  
and lab exercises

**Practice** on  
state-of-the-art  
test-preparation  
software

“Damir Bersinic delivers a clearly written, comprehensive guide — with hundreds of targeted exam-prep questions — that is sure to help Oracle professionals prepare for and pass the second Oracle certification exam.”

— *Harry Liebschutz, Senior Oracle Consultant, HDL Consulting, Inc., and author of The Oracle Cookbook*



# Oracle<sup>8i</sup>™ DBA: Architecture and Administration

# Certification Bible

**Damir Bersinic, Oracle Trainer, MCDBA, MCSE+I, MCT,  
Todd Ross, and Yury Sabinin**

Hungry Minds Test  
Engine powered by



**Oracle8i™ DBA:  
Architecture and  
Administration  
Certification Bible**



# **Oracle8i™ DBA: Architecture and Administration Certification Bible**

**Damir Bersinic, Todd Ross, Yury Sabinin**



**Hungry Minds™**

Best-Selling Books • Digital Downloads • e-Books • Answer Networks • e-Newsletters • Branded Web Sites • e-Learning

New York, NY ♦ Cleveland, OH ♦ Indianapolis, IN

**Oracle8i™ DBA: Architecture and Administration  
Certification Bible**

Published by

**Hungry Minds, Inc.**

909 Third Avenue

New York, NY 10022

www.hungryminds.com

Copyright © 2002 Hungry Minds, Inc. All rights reserved. No part of this book, including interior design, cover design, and icons, may be reproduced or transmitted in any form, by any means (electronic, photocopying, recording, or otherwise) without the prior written permission of the publisher.

Library of Congress Control Number: 2001092906

ISBN: 0-7645-4817-4

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

1P/TQ/RR/QR/IN

Distributed in the United States by  
Hungry Minds, Inc.

Distributed by CDG Books Canada Inc. for Canada; by Transworld Publishers Limited in the United Kingdom; by IDG Norge Books for Norway; by IDG Sweden Books for Sweden; by IDG Books Australia Publishing Corporation Pty. Ltd. for Australia and New Zealand; by TransQuest Publishers Pte Ltd. for Singapore, Malaysia, Thailand, Indonesia, and Hong Kong; by Gotop Information Inc. for Taiwan; by ICG Muse, Inc. for Japan; by Intersoft for South Africa; by Eyrolles for France; by International Thomson Publishing for Germany, Austria, and Switzerland; by Distribuidora Cuspide for Argentina; by LR International for Brazil; by Galileo Libros for Chile; by Ediciones ZETA S.C.R. Ltda. for Peru;

by WS Computer Publishing Corporation, Inc., for the Philippines; by Contemporanea de Ediciones for Venezuela; by Express Computer Distributors for the Caribbean and West Indies; by Micronesia Media Distributor, Inc. for Micronesia; by Chips Computadoras S.A. de C.V. for Mexico; by Editorial Norma de Panama S.A. for Panama; by American Bookshops for Finland.

For general information on Hungry Minds' products and services please contact our Customer Care department within the U.S. at 800-762-2974, outside the U.S. at 317-572-3993 or fax 317-572-4002.

For sales inquiries and reseller information, including discounts, premium and bulk quantity sales, and foreign-language translations, please contact our Customer Care department at 800-434-3422, fax 317-572-4002 or write to Hungry Minds, Inc., Attn: Customer Care Department, 10475 Crosspoint Boulevard, Indianapolis, IN 46256.

For information on licensing foreign or domestic rights, please contact our Sub-Rights Customer Care department at 212-884-5000.

For information on using Hungry Minds' products and services in the classroom or for ordering examination copies, please contact our Educational Sales department at 800-434-2086 or fax 317-572-4005.

For press review copies, author interviews, or other publicity information, please contact our Public Relations department at 317-572-3168 or fax 317-572-4168.

For authorization to photocopy items for corporate, personal, or educational use, please contact Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, or fax 978-750-4470.

**LIMIT OF LIABILITY/DISCLAIMER OF WARRANTY: THE PUBLISHER AND AUTHOR HAVE USED THEIR BEST EFFORTS IN PREPARING THIS BOOK. THE PUBLISHER AND AUTHOR MAKE NO REPRESENTATIONS OR WARRANTIES WITH RESPECT TO THE ACCURACY OR COMPLETENESS OF THE CONTENTS OF THIS BOOK AND SPECIFICALLY DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTIONS CONTAINED IN THIS PARAGRAPH. NO WARRANTY MAY BE CREATED OR EXTENDED BY SALES REPRESENTATIVES OR WRITTEN SALES MATERIALS. THE ACCURACY AND COMPLETENESS OF THE INFORMATION PROVIDED HEREIN AND THE OPINIONS STATED HEREIN ARE NOT GUARANTEED OR WARRANTED TO PRODUCE ANY PARTICULAR RESULTS, AND THE ADVICE AND STRATEGIES CONTAINED HEREIN MAY NOT BE SUITABLE FOR EVERY INDIVIDUAL. NEITHER THE PUBLISHER NOR AUTHOR SHALL BE LIABLE FOR ANY LOSS OF PROFIT OR ANY OTHER COMMERCIAL DAMAGES, INCLUDING BUT NOT LIMITED TO SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR OTHER DAMAGES.**

**Trademarks:** Hungry Minds and related tradedress are trademarks of Hungry Minds, Inc. All other trademarks are the property of their respective owners. Hungry Minds, Inc., is not associated with any product or vendor mentioned in this book.

 is a trademark of  
**Hungry Minds** Hungry Minds, Inc.

## About the Authors

**Damir Bersinic** has over seventeen years of industry experience working with Oracle, SQL Server, Microsoft Windows NT/2000, BackOffice, and other advanced products. He is President and founder of Bradley Systems Incorporated, a Microsoft Certified Partner focusing on database, Internet, and system integration consulting and training. He holds a number of industry certifications including Oracle Certified Professional (DBA) for Oracle 7.3, 8, and 8i; Microsoft Certified Systems Engineer (MCSE); Microsoft Certified Database Administrator (MCDBA); Microsoft Certified Trainer (MCT); and Certified Technical Trainer (CTT). His extensive work with Oracle, SQL Server, Windows NT/2000, and BackOffice has enabled him to provide high-level consulting and other assistance to clients in Canada, the United States, and other parts of the globe. He is an avid fan of Formula 1 and CART racing and can be found in front of his large-screen TV on almost all race weekends. When he's not working, he enjoys time with his wife Visnja and son Anthony. Damir can be reached via e-mail at [damir@bradsys.com](mailto:damir@bradsys.com).

**Todd Ross** is a Senior Oracle and UNIX instructor, as well as the Corporate Oracle Stream Leader, for TMI-Learnix Ltd. He is a Certified Oracle Professional in Oracle 7.3, 8.0, and 8i. He also runs an Oracle and Informix consulting company that specializes in database and SQL tuning as well as corporate backup and recovery strategies. Over the past eight years, Todd has been involved in Oracle implementations ranging from Oracle 6 to 8i on several different operating systems such as VAX, UNIX, NT, and 2000 all around the world. Todd is currently working with Oracle9i and trying to spend as much time as possible at home with his wife and two young children.

**Yury Sabinin** is an Oracle Certified Professional (DBA) living in Vancouver, British Columbia, Canada, with his wife and son. He has been involved in the industry since 1987. He is currently a full-time trainer with TMI-Learnix Ltd., teaching Oracle and other courses. He is also a consultant at SYM IT Services Ltd., a Vancouver consulting firm. In his spare time (not that he has any), he collects mechanical watches and tries to stay as far away from computers as possible.

# Credits

**Acquisitions Editor**

Terri Varveris

**Project Editor**

Barbra Guerra

**Technical Editor**

Mike Hordila

**Copy Editors**

Barbra Guerra

Dennis Weaver

Susan Christophersen

**Editorial Manager**

Kyle Looper

**Project Coordinator**

Dale White

**Graphics and Production Specialists**

Laurie Petrone, Jill Piscitelli,

Jacque Schneider, Brian Torwelle,

Jeremy Unger

**Quality Control Technicians**

Laura Albert, David Faust,

John Greenough, Andy Hollandbeck,

Robert Springer

**Permissions Editor**

Laura Moss

**Media Development Specialist**

Travis Silver

**Proofreading and Indexing**

TECHBOOKS Production Services

*I would like to dedicate this book to what a colleague of mine refers to as the lightbulbs—the look in the eye of a student or reader when the pieces fall into place. As you continue your journey in Oracle certification with this book, may you be blessed with many lightbulbs.*

***Damir Bersinic***



# Preface

---

**P**reparing to become an Oracle Certified Professional in the database administration (DBA) track is a journey that starts with a single step. If you have already passed the “Introduction to Oracle: SQL & PL/SQL” exam you have taken that first step and are well on your way. The next step in the process is to take and pass the “Oracle8i: Architecture and Administration” exam, a task which this book is designed to help you accomplish.

In order to become an Oracle Certified Professional (OCP) in the DBA track for Oracle8i, you will need to pass the following examinations:

- ◆ Exam 1Z0-001: Introduction to Oracle: SQL & PL/SQL
- ◆ Exam 1Z0-023: Oracle8i Architecture and Administration
- ◆ Exam 1Z0-025: Oracle8i Backup and Recovery
- ◆ Exam 1Z0-024: Oracle8i Performance and Tuning
- ◆ Exam 1Z0-026: Oracle8i Network Administration

The Oracle8i certification path is designed to lead you to the goal of becoming an OCP in a gradual process. There is no requirement to take the exams in the order they are intended so you do not need to take the exam for which this book prepares you right away. If you prefer to gain more experience and take another one of the exams first, this is acceptable. The only requirement to become an Oracle Certified Professional in the DBA track is that you pass all five exams, in no particular order.

For each of the above exams, Oracle provides a set of objectives that you will be tested on and required to be familiar with. The objectives for the “Oracle8i: Architecture and Administration” exam are listed in Appendix C, as well as a cross-reference of which chapters in this book provide information on that objective. The complete set of objectives for the entire track may be found in the *Oracle Certified Professional Program Candidate Guide, Oracle8i Certified Database Administrator Track* available on Oracle’s Web site at <http://www.oracle.com/education/certification/index.html?ocpguides.html>. **The exact link to the Adobe Acrobat PDF file for the DBA track is:** [http://www.oracle.com/education/downloads/dba8i\\_cg.pdf](http://www.oracle.com/education/downloads/dba8i_cg.pdf).

The Candidate Guide document should be reviewed to gain a full understanding of the Oracle Certified Professional Program, as well as how to schedule your exams for your geographical area.

## What's In This Book?

This book is divided into six parts.

- ◆ **Part I—Overview of Oracle Architecture and Administration.** Like in most things, it is always good to start at the beginning. This first part of the book does exactly that by introducing you to the architectural elements of Oracle so that you have a better sense of what components make up an Oracle database and instance. You will then find out what tools are available to administer an Oracle database. This part presents the 40,000-foot view of Oracle. All of the information you are introduced here is explained in much more detail in the parts of the book that follow.
- ◆ **Part II—Creating and Administering an Oracle Instance and Database.** After receiving the 40,000-foot view of Oracle in Part I of this book, Part II takes you to the next logical progression—creating a database and learning more about what each of the database components is used for and how to administer them. You will be shown how an instance is configured and started, and the steps required to create a database from scratch. This will be followed by information on how to manage key Oracle database files including the control files, redo log files, and datafiles. The emphasis of this part of the book is on the administration of Oracle's physical elements.
- ◆ **Part III—Administering Storage for Oracle Objects.** Knowing how to create a database, tablespaces, and datafiles is only one part of administering Oracle. You also need to be aware of issues surrounding the proper location of various objects in Oracle that require storage (segments). This part of the book, divided into five chapters that first introduce you to the different types of segments in an Oracle database, then follows with a discussion on each segment's particular storage needs, and finishes with a discussion on how to enforce data integrity in the database and the impact of constraints. The focus of this part of the book is the logical structure of the Oracle database and how to ensure that the database is operating as efficiently as possible. Even though a thorough discussion on performance tuning is beyond the scope of this book, Part III will provide hints on the efficient use of space for each segment type.
- ◆ **Part IV—Managing Oracle Data.** During your career as a database administrator there will be times when you will need to load large amounts of data into your database, move data from one database to another, or simply reorganize data in an existing database to improve performance and provide for more efficient storage. The use of Import and Export utilities, and other means to reorganize the data in the database to ensure efficient data retrieval, and how to load data into an Oracle database using SQL\*Loader are covered in the two chapters that make up Part IV.
- ◆ **Part V—Administering Oracle Security.** This part of the book deals with database security, from understanding how configure security profiles,

creating and managing users, assigning permissions and the different types of permissions available, all the way to simplifying the administration of permissions using roles. As a database administrator it will be your responsibility to ensure that the database is not compromised and that only those individuals who need access have it.

- ◆ **Part VI—National Language Support.** Oracle introduced National Language Support to make it easier to deploy databases that will be accessed by users in multiple geographic areas simultaneously. This feature allows national language sorting, error message display, and much more. The single chapter in this part allows you to gain an understanding of how to use this ability to the benefit of your users.

The book has been divided into these parts from the standpoint of organization and logic and not to satisfy the exam requirements in a one-to-one mapping. Each objective of the exam is covered by material in the book. Appendix C lists the exam objectives and the relevant section of the book where each is covered.

The appendixes of the book provide a number of useful items:

- ◆ **Appendix A** outlines the programs and other information found on the CD-ROM provided. These include an electronic copy of the book in PDF format, a sample exam with 300 or so questions that will help you to prepare to write the real exam, and many other useful software programs.
- ◆ **Appendix B** contains a sample exam with the same number of questions as found in the actual Oracle exam. The styles of questions in this appendix are designed to closely emulate the type of questions you can expect on the exam and therefore help to prepare for it. Answers to each question are also provided, along with an explanation of why the correct answer is correct and the others are incorrect.
- ◆ **Appendix C** provides a mapping of the “Oracle8i: Architecture and Administration” exam objectives to the chapters and sections where these objectives are covered in the book. If you find that you are weak in a particular area, this appendix will let you focus your study by pointing you to the correct part of the book with the information you require.
- ◆ **Appendix D** contains information on what to do to properly prepare for the exam, and what some of the rules are.
- ◆ **Appendix E** lists the objects used by the exercises at the end of each chapter, as well as providing a hard copy of the scripts used to create and populate the objects.
- ◆ **Appendix F** recommends some other books, Web sites, and other resources that may be useful in helping you prepare for the exam, as well as increase your knowledge of relational databases and Oracle.

## How to Use This Book

When asked what the best place to start would be, a wise individual once said *at the beginning*. This same truth holds true here. The parts and chapters of this book are meant to build upon concepts presented in previous chapters. Similarly, the labs of each chapter may also depend upon the results of labs in previous chapters. While this last point is not a hard and fast rule, it should be kept in mind. The recommended practice is to read the book from beginning to end and absorb the material in the order presented.

Each chapter, as well, follows a consistent structure. You are first presented with a series of questions to test your knowledge of the material in the chapter. This is useful if you feel that you are quite familiar with the topics about to be presented—the Chapter Pre-Test questions allow you to verify that you have a good grasp of the information.

Following the Chapter Pre-Test, the main body of the chapter is presented. You will be introduced to concepts and shown examples of code, as appropriate. Feel free to try the code as you are reading the material to verify that you get the same results as the author. In some cases, the same steps may be followed in the labs at the end of the chapter, so if the code does not work, check that section of the chapter.

Each chapter ends with a Key Point Summary, designed to reinforce the main elements presented in the chapter, and then presents a series of exam-style questions to test your understanding of the material. This is followed by one or more scenario-based questions to further test your understanding of the material. You are then asked to complete some Lab Exercises to provide you with some hands-on experience in the material. You are free to do the labs before answering the Quick Assessment exam-style questions.

Answers for the Chapter Pre-Test, Quick Assessment, Scenarios, and Lab Exercises are provided at the end of the chapter. These are designed to allow you to confirm the results of your work, and will provide additional information where necessary.

After you have read each chapter, you should use the CD-based exam to further test your knowledge. When you feel that you are ready, you can then try your hand at the Practice Exam in Appendix B. If you feel that you have sufficient information, go ahead and schedule your exam.

The night before taking the exam, review each chapter's Key Point Summary to make sure you understand the material, and answer the Chapter Pre-Test questions again. After passing the exam, the book can also make an excellent reference for any DBA, so keep it handy.

## Conventions Used in This Book

Whenever command syntax was presented it will appear similar to the following:

```
CREATE [GLOBAL TEMPORARY] TABLE [schema.]tablename  
  (columnname datatype [NULL | NOT NULL] [DEFAULT expression]  
  [, ...]);
```

- ◆ Any elements of the command that are required are presented in uppercase, such as the words CREATE and TABLE in the above example.
- ◆ Any elements of the command language that are optional are presented in uppercase and enclosed in square brackets (“[” and “]”), such as the [GLOBAL TEMPORARY] option in the above example.
- ◆ Any element that is a substitution variable for an object name in a code example is presented in lowercase, such as the word “tablename” or “columnname” or “datatype” in the above example.
- ◆ Any element that is an optional substitution variable for an object name component, or an object name, such as the word “schema” in the above example, will be all lowercase and enclosed in square brackets.
- ◆ Any optional element of the command syntax will always be enclosed in square brackets.
- ◆ Any portion of the command syntax where mutually exclusive choices need to be made, will separate those choices by a pipe symbol “|”. An example of this is the choice between NULL and NOT NULL in the above syntax.
- ◆ Any element that can be repeated several times within the code syntax will be represented by three dots (...).
- ◆ Any element that is underlined denotes the default option for the command.

## What the Icons Mean

Throughout the book, we’ve used *icons* in the left margin to call your attention to points that are particularly important.

**Objective**

The Objective icon indicates that the material being presented in the following section directly maps to an objective on the “Oracle8i: Architecture and Administration” exam.

**Note**

Note icons are used to tell you that something is important and perhaps a concept that may help you master the task at hand or something fundamental for understanding subsequent material.



Tip icons indicate a more efficient way of doing something, or a technique that may not be obvious.



The Exam Tip icon is used to help you focus your studies more precisely. Throughout the book many topics are covered in more detail than necessary to pass the exam. The Exam Tip icon provides information on which elements you will most likely be tested on.



Caution icons are used when performing a certain operation incorrectly or in a particular way can cause problems down the road.



The Cross Reference icon is used to refer you to other sections of the same chapter or other chapters that have more to say on a subject.



The In The Real World icon is used to present information on how experienced DBAs perform certain tasks and what really happens versus what Oracle may want you to think is happening. This icon also may present an alternative method of performing a certain task.

# Acknowledgments

---

I would like to acknowledge the hard work put in by my contributing authors on this title. It was a new experience to some of you but you all came through it with flying colors. This was greatly helped by the assistance of the entire Hungry Minds team, who pushed us when we needed to be pushed, but let us do what we needed to do otherwise.

Each of us would also like to acknowledge the contributions our families made to this project. Their understanding when would rather be with them, but needed to write, helped make the process less painful. They also know that the smoother the process was for us involved, the sooner we would be able to spend more time with them. To our wives, husbands, and children: we are always grateful for your support and understanding, even if we don't show it all the time.

Finally, if you read the short snippets of information on the authors contributing to this book, you will note that two out of three work for the same company: TMI-Learnix. A special thank you goes out to Tim Mabey and Mia Hempey who not only allowed me to grab some of their trainer's free time and get them involved on this project, but also actively encouraged it. Working with you folks has always been, and continues to be, a pleasure.

# Contents at a Glance

---

Preface . . . . .	viii
Acknowledgments . . . . .	xiv

## **Part I: Overview of Oracle Architecture and Administration . . . . . 1**

Chapter 1: Oracle8i Architecture . . . . .	3
Chapter 2: Getting Started with Oracle8i Server . . . . .	35

## **Part II: Creating and Administering an Oracle Instance and Database . . . . . 89**

Chapter 3: Managing an Oracle Instance . . . . .	91
Chapter 4: Creating a Database . . . . .	139
Chapter 5: Creating Data Dictionary Views and Standard Packages . . . . .	193
Chapter 6: Maintaining the Control File . . . . .	253
Chapter 7: Maintaining Redo Log Files . . . . .	273
Chapter 8: Managing Tablespaces and Datafiles . . . . .	325

## **Part III: Administering Storage for Oracle Objects . . . . . 387**

Chapter 9: Storage Structure and Relationships . . . . .	389
Chapter 10: Managing Rollback Segments . . . . .	425
Chapter 11: Managing Tables . . . . .	485
Chapter 12: Managing Indexes . . . . .	579
Chapter 13: Maintaining Data Integrity . . . . .	629

## **Part IV: Managing Oracle Data . . . . . 683**

Chapter 14: Loading Data . . . . .	685
Chapter 15: Reorganizing Data . . . . .	731

## **Part V: Managing Oracle Security . . . . . 797**

Chapter 16: Managing Password Security and Resources . . . . .	799
Chapter 17: Managing Users . . . . .	845
Chapter 18: Managing Privileges . . . . .	891
Chapter 19: Managing Roles . . . . .	973



<b>Part VI: National Language Support</b> . . . . .	<b>1021</b>
Chapter 20: Using National Language Support . . . . .	1023
Appendix A: What's on the CD-ROM . . . . .	1065
Appendix B: Practice Exam . . . . .	1071
Appendix C: Objective Mapping . . . . .	1095
Appendix D: Exam Tips . . . . .	1103
Appendix E: Database Schema for Labs . . . . .	1107
Appendix F: Suggested Readings, Web Sites, and Other Resources . . . . .	1125
Index . . . . .	1129
End-User License Agreement . . . . .	1168

# Contents

Preface . . . . . viii

Acknowledgments . . . . . xiv

## Part I: Overview of Oracle Architecture and Administration 1

**Chapter 1: Oracle8i Architecture . . . . . 3**

- Oracle Architectural Overview . . . . . 5
  - Oracle instance . . . . . 7
  - Oracle database . . . . . 18
  - Other key Oracle files . . . . . 20
- Processing SQL Statements . . . . . 22
  - Connecting to an instance . . . . . 22
  - Statement and transaction processing . . . . . 24
- Key Point Summary . . . . . 26
- Assessment Questions . . . . . 28
- Answers to Chapter Questions . . . . . 30
  - Chapter Pre-Test . . . . . 30
  - Assessment Questions . . . . . 32

**Chapter 2: Getting Started with Oracle8i Server . . . . . 35**

- Oracle Universal Installer . . . . . 37
  - Optimal Flexible Architecture (OFA) . . . . . 42
- Privileged Users . . . . . 43
  - Authenticating privileged users . . . . . 45
- Oracle Tools for Administration . . . . . 53
  - Interactive/command-line administration tools . . . . . 53
  - Oracle Enterprise Manager . . . . . 60
  - Other graphical administration tools . . . . . 76
- Key Point Summary . . . . . 78
- Assessment Questions . . . . . 80
- Scenarios . . . . . 83
- Lab Exercises . . . . . 83
- Answers to Chapter Questions . . . . . 85
  - Chapter Pre-Test . . . . . 85
  - Assessment Questions . . . . . 86
  - Scenarios . . . . . 88

## Part II: Creating and Administering an Oracle Instance and Database

89

<b>Chapter 3: Managing an Oracle Instance</b> . . . . .	<b>91</b>
Overview of Starting and Stopping an Oracle Instance . . . . .	93
Parameter File (INIT.ORA) . . . . .	94
Required INIT.ORA parameters . . . . .	96
Other key INIT.ORA parameters . . . . .	97
Storing saved configurations using Instance Manager . . . . .	102
Starting Up and Shutting Down an Oracle Instance . . . . .	103
Startup/shutdown stages . . . . .	103
The STARTUP command . . . . .	104
The SHUTDOWN command . . . . .	108
Dynamic performance views . . . . .	111
Managing Oracle Instance Settings . . . . .	115
Displaying parameter values . . . . .	115
Dynamically changing parameter values . . . . .	116
Managing User Sessions . . . . .	119
Managing the ALERT File and Trace Files . . . . .	122
Key Point Summary . . . . .	125
Assessment Questions . . . . .	127
Scenarios . . . . .	129
Lab Exercises . . . . .	130
Answers to Chapter Questions . . . . .	131
Chapter Pre-Test . . . . .	131
Assessment Questions . . . . .	132
Scenarios . . . . .	134
Lab Exercises . . . . .	135
<b>Chapter 4: Creating a Database</b> . . . . .	<b>139</b>
Overview of Creating and Managing a Database . . . . .	141
Creation Prerequisites . . . . .	142
Operating system considerations . . . . .	142
Permissions . . . . .	144
Planning database file locations . . . . .	144
Creating a Database . . . . .	149
Using the Oracle Database Configuration Assistant . . . . .	149
Creating a database manually using the CREATE DATABASE command . . . . .	165
Troubleshooting Database Creation Problems . . . . .	178
Key Point Summary . . . . .	179

Assessment Questions . . . . .	182
Scenarios . . . . .	185
Lab Exercises . . . . .	185
Answers to Chapter Questions . . . . .	186
Chapter Pre-Test . . . . .	186
Assessment Questions . . . . .	187
Scenarios . . . . .	188
Lab Exercises . . . . .	189

## **Chapter 5: Creating Data Dictionary Views and Standard Packages . . . . . 193**

Overview of Data Dictionary Views, Standard Packages, and Database Event Triggers . . . . .	195
Data dictionary base tables and views . . . . .	197
Uses of the Oracle data dictionary . . . . .	199
Data Dictionary View Types . . . . .	199
DBA_ Views . . . . .	200
USER_ Views . . . . .	202
ALL_ Views . . . . .	204
Special data dictionary views . . . . .	205
Dynamic performance views . . . . .	206
Stored Program Units . . . . .	209
Stored program unit types . . . . .	209
Benefits of stored program units . . . . .	210
Stored PL/SQL program units . . . . .	211
Oracle data dictionary packages . . . . .	228
View stored object information . . . . .	230
Creating Data Dictionary Views . . . . .	232
Scripts to create data dictionary views and packages . . . . .	232
Other scripts and data dictionary objects . . . . .	237
The Next Step . . . . .	239
Key Point Summary . . . . .	239
Assessment Questions . . . . .	241
Scenarios . . . . .	244
Lab Exercises . . . . .	244
Answers to Chapter Questions . . . . .	245
Chapter Pre-Test . . . . .	245
Assessment Questions . . . . .	246
Scenarios . . . . .	248
Lab Exercises . . . . .	248

## **Chapter 6: Maintaining the Control File . . . . . 253**

Overview of the Control File . . . . .	255
Control File Contents . . . . .	256
Creating the Control File . . . . .	257