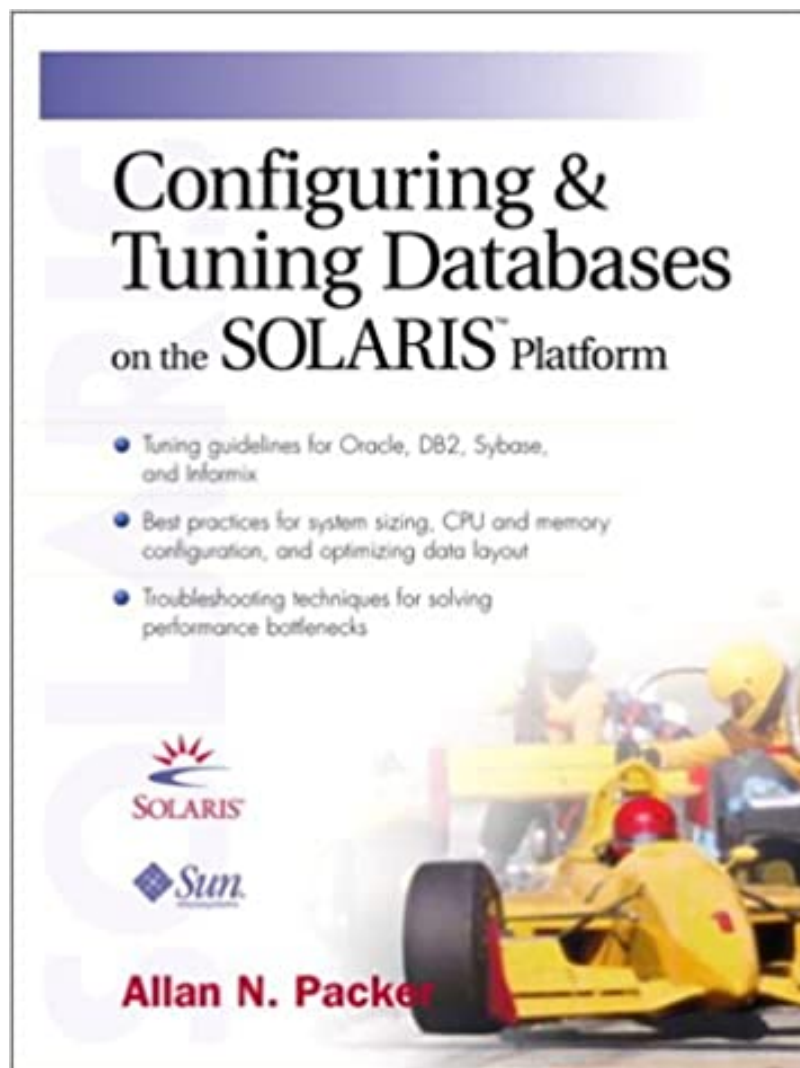


# Configuring and Tuning Databases on the Solaris Platform

*by*

**Barbara Lori**



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## Synopsis

Turbocharge your Oracle, DB2, Sybase, or Informix database environment! Covers every aspect of database and Solaris Operating Environment tuning Optimize data layout, CPU and memory configuration, and system sizing Identify and resolve bottlenecks, step-by-step Understand industry-leading benchmarks Maximize the performance of any enterprise database running on the Solaris Operating Environment! Using this book, database professionals can optimize the performance and cost-effectiveness of virtually any database application running on the Solaris platform. Database specialist Allan Packer presents start-to-finish guidance for optimizing all four leading Solaris platform databases: Oracle (including Oracle9i), DB2, Sybase, and Informix XPS. Drawing on years of expertise as an engineer at Sun, Packer brings together best-practice guidelines for every aspect of Sun database server tuning. Optimizing data layout, CPU and memory configuration, and system sizing Identifying and resolving bottlenecks: a systematic, drill-down monitoring approach Understanding database optimizers, database buffer cache, and other key subsystems Demystifying the industry's leading benchmarks-and recognizing their limitations Understanding the impact of Java technology on database application design Contains a quick primer on database architecture and concepts

## Sort review

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for the internal training organization focused on configuring, monitoring and tuning database systems. He currently specializes in server systems performance and availability. Excerpt. © Reprinted by permission. All rights reserved.

**PREFACE**

Many books have been written on database tuning—I personally own enough volumes on Oracle tuning to fill a small shelf. Very few, though, approach configuring, tuning, monitoring, and troubleshooting from the perspective of the system as a whole, treating the database as one of a number of key components. I have set out to approach database configuration and tuning from this broader context. To my knowledge, this book is the first attempt at tackling database tuning for multiple databases. Since many aspects of database architecture and tuning are common across the major products, I have separated out generic topics such as database concepts, hardware architectures, the buffer cache and the optimizer. I hope that the opportunity to see the big picture and to compare and contrast the different implementations outweighs the inconvenience of having to follow cross-references at times. This book is also the first published guide to database configuring and tuning for Solaris users (although most of the principles and much of the detail should be applicable to other UNIX systems). I trust that it will enhance your experience of running databases on the Solaris Operating Environment. My aim has been to identify the highlights. An overwhelming array of statistics are reported by Solaris and the various databases; rather than attempting to define every statistic and tunable parameter, I focus on those likely to have the most impact on common database workloads. Finally, no one person could claim a full mastery of all the topics covered in this book, and I certainly make no such assertion on my own behalf. I have tried to distill the knowledge I have acquired during my 12 years with Sun—5 years in the field organization as a Systems Engineer specializing in databases, followed by 7 years in Database Engineering (now Performance and Availability Engineering)—and add to it the research and insights of my colleagues. I was fortunate to join an engineering group that actively pursued engineering relationships with all four database vendors. This involvement has offered me direct participation in performance projects with the engineering groups at Oracle in Redwood Shores, IBM at the DB2 Development Lab in Toronto, and Sybase at Emeryville. My contact with Informix has been peripheral, and in writing the Informix chapters I have relied heavily on the wisdom and experience of my colleagues.

**Intended Audience**

This book should appeal to the following groups of readers: Database administrators looking for practical tuning advice and for a broader understanding of the system as a whole. System administrators and other technical staff wanting to expand their understanding of the architecture and management of databases. Developers hoping to better understand the context in which their applications are used. The suggestions on benchmarking applications during the entire development cycle should be of particular interest. Specialists in one database wanting to learn more about other databases. I know many people who have expressed a desire to better understand the other major databases, but found the task too daunting. I hope this book will simplify that process by providing enough material to answer the important questions without being overwhelming. System users who simply want to understand the jargon associated with

databases and the servers on which they run. I have tried to go into enough depth to satisfy those looking for detailed configuration and tuning suggestions, while still making the content accessible to people who are not database or Solaris gurus.

### Organization of This Book

This book is organized in five parts. Parts One, Two, and Five are best viewed as reference material. Parts Three and Four lend themselves to hands-on tuning.

**Part One: Databases on Sun Servers** — Provides background information on Sun's relationship with database vendors and Sun's Database Engineering organization, and discusses the optimizations made to the Solaris Operating Environment to improve database performance and availability. The section concludes with a review of the major hardware architectures (including those not supported by Sun) and their implications for database deployment.

**Part Two: Database Architecture** — Addresses database concepts, database workloads, and explores in detail the database optimizer and the role and sizing of the database buffer cache. Separate chapters discuss the architecture of Oracle, Sybase, Informix XPS, and DB2 for Solaris; for these chapters I provide a consistent format to make it easier for those wanting to contrast an unfamiliar database with one that is more familiar.

**Part Three: Sizing and Configuring Sun DBMS Servers** — Focuses on system sizing and configuring the CPUs, memory, and networks of a database server. The section concludes with a detailed discussion of data layout technologies, strategies, and recommendations.

**Part Four: Performance Monitoring and Tuning** — Deals with the issues and tools associated with performance monitoring and tuning, and offers a drill-down method for identifying and resolving system bottlenecks. Detailed configuration and tuning advice is provided for each of Oracle, Sybase, Informix XPS, and DB2 for Solaris, and the section concludes with a discussion on how to monitor applications and what metrics to collect.

**Part Five: Other Topics** — The final section of the book covers benchmarks and the role of Java technology in databases. The first chapter examines the pros and cons of industry-standard benchmarks and investigates the process and potential pitfalls involved in developing your own benchmark. The final chapter explores direct support for Java technology in databases and the Java 2 Enterprise Edition (J2EE) technology that is central to the burgeoning middleware market.

An appendix lists sources for supplementary information.

### Book Website

The scripts and utilities referred to in the book are available on the book website, and I will also use this site to post updates to the material in the book. The website can be found at: [solarisdatabases.com](http://solarisdatabases.com)

A Note from the Author: I welcome your feedback, suggestions, and general comments. If you like the book, please let me know! If you find flaws, errors, or omissions, I would also be glad to hear of them. In reading *Configuring and Tuning Databases for the Solaris Platform*, I hope you receive even a small proportion of the benefit I have gained from writing it.—Allan Packer

Allan.Packer@Sun.COM

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### PREFACE

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**A Note from the Author** I welcome your feedback, suggestions, and general comments. If you like the book, please let me know! If you find flaws, errors, or omissions, I would also be glad to hear of them. In reading *Configuring and Tuning Databases for the Solaris Platform*, I hope you receive even a small proportion of the benefit I have gained from writing it.—Allan Packer

Allan.Packer@Sun.COM

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Orlando Piedrahita, "Could not put the book down. I bought this book thinking that i would get some good ideas in order to get a little bit more performance from our servers, however once i started reading i could not put it down until 5 hours later.It cuts all the small talk, and it breaks down every topic in an understandable format and teaches you what you really need to know.The section on how to improve DISK performance was great, i implemented many things that i learned from reading this book.Just buy it, you wont regretit.Its a small price to pay for a good piece of mind."

Carl Kayser, "Excellent book, but. it's about time for a new edition. Since 2002 there is Solaris 10, ASE 15.0.2, Oracle 11g, etc. I agree with all of the 5 star reviewers and there were no print quality issues with my copy. Biggest problem would be for Mr. Packer to assimilate and digest all of the information from the new RDBMS software available now. If I could I would give this book 6 stars. (By the way, many of the chapters would still be relevant for specific RDBMSs running on AIX, HP, Linux, etc.)"

Guy Bourdon, "Once in a bluemoon a classic is born!. This book doesn't belong on your bookshelf it belongs on your desk beside your workstation. Mr. Packer's clarity, conciseness and comprehensiveness in his coverage of a complex topic is a tour de force that few technical writers are able to achieve these days. Written for an intelligent reader in mind, the subject matter is explained simply, directly and elegantly. No profusions of analogies, this author knows what he's talking about and he can explain it.The organization of the chapters is first-rate. You can get to the heart of the matter with a quick glance at the table of content. The indexing is excellent. I'm amazed that I can find an entry for most of the topics I'm looking up. It has become my first point of reference for configuration and tuning issues.Do yourself a favour, BUY IT! I'm already looking forward to the second edition of this masterpiece."

JT, "A must for your performance reference. This book is a MUST for anyone involved in Solaris performance management.Not only does Alan Packer provide incredibly useful information regarding how the Orcale, Sybase, Informix and DB2 databases work but he also gives many hints and tips on Solaris-related issues.From process management to data storage, there is something here for anyone involved in administering performance on Solaris servers.Also, the content is very much up-to-date with coverage of Solaris 2.6, 7 and 8.An excellent read, very informative and well written"

F.K., "Very Nice Book, every DBA/SYSADMIN should read. This book is amazing , it let's you understands the concepts of all the databases and how it interacts with UNIX ( specially SOLARIS ) but It just needs to be updated."



The book by Barbara Lori has a rating of 5 out of 4.4. 8 people have provided feedback.

## **Book Information**

Language: English

File size: 2665 KB

Simultaneous device usage: Unlimited

Text-to-Speech: Enabled

Screen Reader: Supported

Enhanced typesetting: Enabled

X-Ray: Not Enabled

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Print length: 278 pages

Paperback: 502 pages

Item Weight: 1.91 pounds

Dimensions: 7 x 1.25 x 9 inches

Hardcover: 96 pages

Reading age: 8 - 10 years

Grade level: 3 - 4

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