

# Oracle Sql Performance Tuning And Optimization Its All About The Cardinalities

Oracle SQL Performance Tuning and Optimization  
 Expert Indexing in Oracle Database 11g  
 SQL Tuning  
 Oracle Performance Tuning  
 Oracle Database 12c Performance Tuning Recipes  
 Oracle SQL  
 ORACLE High-Performance SQL Tuning  
 Effective Oracle by Design  
 Oracle Rac Performance Tuning  
 SQL Performance Explained  
 Oracle 9I Performance Tuning: Tips & Techniques  
 Expert One-on-One Oracle  
 Oracle Performance Survival Guide  
 SQL Server Query Performance Tuning  
 Oracle SQL Tuning Pocket Reference  
 The Art of SQL  
 Oracle Applications Performance Tuning Handbook  
 Oracle Database 12c Release 2 Performance Tuning Tips & Techniques  
 Mastering Oracle SQL  
 Oracle Performance Survival Guide: A Systematic Approach To Database Optimization  
 Oracle Performance Troubleshooting  
 Oracle Performance Tuning 101  
 Troubleshooting Oracle Performance  
 Oracle Tuning Power Scripts  
 Oracle Database 12c The Complete Reference  
 Oracle PL/SQL Best Practices  
 Oracle Performance Tuning and Optimization  
 Toad for Oracle Unleashed  
 Oracle PL/SQL Performance Tuning Tips & Techniques  
 Oracle Database 10g Performance Tuning Tips & Techniques  
 Optimizing Oracle Performance  
 Dynamic Oracle Performance Analytics  
 Quick Start Guide to Oracle Query Tuning: Tips for DBAs and Developers  
 Expert Oracle SQL  
 SQL Performance Tuning  
 Oracle High Performance Tuning for 9i and 10g  
 Oracle Data Warehouse Tuning for 10g  
 Oracle SQL High-performance Tuning  
 Oracle Performance Tuning for 10gR2  
 Expert Oracle Database Architecture

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## KENNEDI GUERRA

**Oracle SQL Performance Tuning and Optimization** Rampant  
 TechPress

Oracle system performance inefficiencies often go undetected for months or even years--even under intense scrutiny--because traditional Oracle performance analysis methods and tools are fundamentally flawed. They're unreliable and inefficient. Oracle DBAs and developers are all too familiar with the outlay of time and resources, blown budgets, missed deadlines, and marginally effective performance fiddling that is commonplace with traditional methods of Oracle performance tuning. In this crucial book, Cary Millsap, former VP of Oracle's System Performance Group, clearly and concisely explains how to use Oracle's response time statistics to diagnose and repair performance problems. Cary also shows how "queueing theory" can be applied

to response time statistics to predict the impact of upgrades and other system changes. Optimizing Oracle Performance eliminates the time-consuming, trial-and-error guesswork inherent in most conventional approaches to tuning. You can determine exactly where a system's performance problem is, and with equal importance, where it is not, in just a few minutes--even if the problem is several years old. Optimizing Oracle Performance cuts a path through the complexity of current tuning methods, and streamlines an approach that focuses on optimization techniques that any DBA can use quickly and successfully to make noticeable--even dramatic--improvements. For example, the one thing database users care most about is response time. Naturally, DBAs focus much of their time and effort towards improving response time. But it is entirely too easy to spend hundreds of hours to improve important system metrics such as hit ratios, average latencies, and wait times, only to find users are unable to perceive the difference. And an expensive hardware upgrade may not help either. It doesn't have to be that way. Technological

advances have added impact, efficiency, measurability, predictive capacity, reliability, speed, and practicality to the science of Oracle performance optimization. *Optimizing Oracle Performance* shows you how to slash the frustration and expense associated with unraveling the true root cause of any type of performance problem, and reliably predict future performance. The price of this essential book will be paid back in hours saved the first time its methods are used.

*Expert Indexing in Oracle Database 11g* McGraw-Hill

"This book should satisfy those who want a different perspective than the official Oracle documentation. It will cover all important aspects of a data warehouse while giving the necessary examples to make the reading a lively experience. - Tim Donar, Author and Systems Architect for Enterprise Data Warehouses

Tuning a data warehouse database focuses on large transactions, mostly requiring what is known as throughput. Throughput is the passing of large amounts of information through a server, network and Internet environment, backwards and forwards, constantly! The ultimate objective of a data warehouse is the production of meaningful and useful reporting, from historical and archived data. The trick is to make the reports print within an acceptable time frame. A data model contains tables and relationships between tables. Tuning a data model involves Normalization and Denormalization. Different approaches are required depending on the application, such as OLTP or a Data Warehouse. Inappropriate database design can make SQL code impossible to tune. Poor data modeling can have a most profound effect on database performance since all SQL code is constructed from the data model.\* Takes users beyond basics to critical issues in running most efficient data warehouse applications\* Illustrates how to keep data going in and out in the most productive way possible\* Focus is placed on Data Warehouse performance tuning  
*SQL Tuning* "O'Reilly Media, Inc."

Tom Kyte of Oracle Magazine's "Ask Tom" column has written the definitive guide to designing and building high-performance, scalable Oracle applications. The book covers schema design, SQL and PL/SQL, tables and indexes, and much more. From the exclusive publisher of Oracle Press books, this is a must-have resource for all Oracle developers and DBAs.

*Oracle Performance Tuning* Pearson Education

"Offers hundreds of hints, tips, and tricks of the trade that can be useful to any DBA wanting to achieve maximum performance of Oracle applications. No Oracle library would be complete without this book." --Ken (Dr. DBA) Jacobs, Vice President of Product Strategy for Server Technologies, Oracle Corporation "Rich is the first and last stop for Oracle Database technology and performance tuning. His knowledge is a vital tool that you need to successfully negotiate the waters of Oracle database development." --Mike Frey, Principal Architect, Navteq

**Oracle Database 12c Performance Tuning Recipes** Sams Publishing

\* A proven best-seller by the most recognized Oracle expert in the world. \* The best Oracle book ever written. It defines what Oracle really is, and why it is so powerful. \* Inspired by the thousands of questions Tom has answered on his <http://asktom.oracle.com> site. It tackles the problems that developers and DBAs struggle with every day. \* Provides everything you need to know to program correctly with the database and exploit its feature-set effectively.

*Oracle SQL* "O'Reilly Media, Inc."

Developers and DBAs use Oracle SQL coding on a daily basis, whether for application development, finding problems, fine-tuning solutions to those problems, or other critical DBA tasks. *Oracle SQL: Jumpstart with Examples* is the fastest way to get

started and to quickly locate answers to common (and uncommon) questions. It includes all the basic queries: filtering, sorting, operators, conditionals, pseudocolumns, single row functions, joins, grouping and summarizing, grouping functions, subqueries, composite queries, hierarchies, flashback queries, parallel queries, expressions and regular expressions, DML, datatypes (including collections), XML in Oracle, DDL for basic database objects such as tables, views and indexes, Oracle Partitioning, security, and finally PL/SQL.\* Each of the hundreds of SQL code examples was tested on a working Oracle 10g database\* Invaluable everyday tool that provides an absolute plethora of properly tested examples of Oracle SQL code\* Authors have four decades of commercial experience between them as developers and database administrators

**ORACLE High-Performance SQL Tuning** Addison-Wesley Professional

A complete revision of the original title, this second edition adds new material on Oracle 7.3 and many Oracle 8 features. It explores new Oracle capabilities like parallel server, parallel query, and distributed database. It contains more detail on constraints and triggers, many more examples, and information on new tuning tools like the Oracle Performance Pack, Oracle Trace, and Oracle Expert.

**Effective Oracle by Design** "O'Reilly Media, Inc."

One of the most important challenges faced by Oracle database administrators and Oracle developers is the need to tune SQL statements so that they execute efficiently. Poorly tuned SQL statements are one of the leading causes of substandard database performance and poor response time. SQL statements that perform poorly result in frustration for users, and can even prevent a company from serving its customers in a timely manner. In this book, Mark Gurry shares his in-depth knowledge of Oracle's SQL statement optimizers. Mark's knowledge is the result of many hard-fought tuning battles during his many years of providing Oracle tuning services to clients. Mark provides insights into the workings of the rule-based optimizer that go well beyond what the rules tell you. Mark also provides solutions to many common problems that occur with both the rule-based and cost-based optimizers. In addition to the specific problem/solution scenarios for the optimizers, Mark provides a number of handy SQL tuning tips. He discusses the various optimizer hints, telling you when they can be used to good effect. Finally, Mark discusses the use of the DBMS\_STATS package to manage database statistics, and the use of outlines to specify execution plans for SQL statements in third-party applications that you can't otherwise modify.

**Oracle Rac Performance Tuning** McGraw Hill Professional

Use an innovative approach that relies on big data and advanced analytical techniques to analyze and improve Oracle Database performance. The approach used in this book represents a step-change paradigm shift away from traditional methods. Instead of relying on a few hand-picked, favorite metrics, or wading through multiple specialized tables of information such as those found in an automatic workload repository (AWR) report, you will draw on all available data, applying big data methods and analytical techniques to help the performance tuner draw impactful, focused performance improvement conclusions. This book briefly reviews past and present practices, along with available tools, to help you recognize areas where improvements can be made. The book then guides you through a step-by-step method that can be used to take advantage of all available metrics to identify problem areas and work toward improving them. The method presented simplifies the tuning process and solves the problem of metric overload. You will learn how to: collect and normalize data, generate deltas that are useful in performing statistical analysis,

create and use a taxonomy to enhance your understanding of problem performance areas in your database and its applications, and create a root cause analysis report that enables understanding of a specific performance problem and its likely solutions. What You'll Learn Collect and prepare metrics for analysis from a wide array of sources Apply statistical techniques to select relevant metrics Create a taxonomy to provide additional insight into problem areas Provide a metrics-based root cause analysis regarding the performance issue Generate an actionable tuning plan prioritized according to problem areas Monitor performance using database-specific normal ranges Who This Book Is For Professional tuners: responsible for maintaining the efficient operation of large-scale databases who wish to focus on analysis, who want to expand their repertoire to include a big data methodology and use metrics without being overwhelmed, who desire to provide accurate root cause analysis and avoid the cyclical fix-test cycles that are inevitable when speculation is used

### **SQL Performance Explained** Apress

Queries not running fast enough? Wondering about the in-memory database features in 2014? Tired of phone calls from frustrated users? Grant Fritchey's book *SQL Server Query Performance Tuning* is the answer to your SQL Server query performance problems. The book is revised to cover the very latest in performance optimization features and techniques, especially including the newly-added, in-memory database features formerly known under the code name Project Hekaton. This book provides the tools you need to approach your queries with performance in mind. *SQL Server Query Performance Tuning* leads you through understanding the causes of poor performance, how to identify them, and how to fix them. You'll learn to be proactive in establishing performance baselines using tools like Performance Monitor and Extended Events. You'll learn to recognize bottlenecks and defuse them before the phone rings. You'll learn some quick solutions too, but emphasis is on designing for performance and getting it right, and upon heading off trouble before it occurs. Delight your users. Silence that ringing phone. Put the principles and lessons from *SQL Server Query Performance Tuning* into practice today. Covers the in-memory features from Project Hekaton Helps establish performance baselines and monitor against them Guides in troubleshooting and eliminating of bottlenecks that frustrate users

*Oracle 9i Performance Tuning: Tips & Techniques* Apress

\* Based on a proven best-seller and written by the most recognized Oracle expert in the world and f \* Fully revised book, covering both for the 9i and 10g versions of the database \* Based on what is widely-recognized as the best Oracle book ever written. It defines what Oracle really is, and why it is so powerful \* Inspired by the thousands of questions Tom has answered on his <http://asktom.oracle.com> site. It defines what Oracle really is, and why it is so powerful It and it tackles the problems that developers and DBAs struggle with every day

### **Expert One-on-One Oracle** Apress

*Expert Indexing in Oracle Database 11g* is about the one database structure at the heart of almost all performance concerns: the index. Database system performance is one of the top concerns in information technology today. Administrators struggle to keep up with the explosion of access and activity driven by the proliferation of computing into everything from phones to tablets to PCs in our increasingly connected world. At the heart of any good-performing database lies a sound indexing strategy that makes appropriate use of indexing, and especially of the vendor-specific indexing features on offer. Few databases fully exploit the wealth of data access mechanisms provided by

Oracle. *Expert Indexing in Oracle Database 11g* helps by bringing together information indexing and how to use it into one, convenient and blissfully short volume that you can read quickly and have at your fingertips for reference. Learn the different types of indices available and when each is best applied. Recognize when queries aren't using indices as you intend. Manage your indexing for maximum performance. Let *Expert Indexing in Oracle Database 11g* be your guide to deep mastery of the most fundamental performance optimization structure in Oracle Database. Explains how indices work, how they help, and how they hinder Demystifies the various index choices Describes the database administration chores associated with indices *Oracle Performance Survival Guide* Elsevier

Written by a Senior Database Administrator who has worked with the Oracle RDBMS for thirty years, this is a book which teaches the skill of SQL Tuning for the Oracle Database. Not a list of one-off tricks or tips, nor a glossing over of topics; this book offers an in-depth process covering discovery, analysis, and problem resolution. Learn the science behind SQL Tuning. Learn and apply the FILTERED ROWS PERCENTAGE Cardinality based method of tuning Determine a query's Driving Table and Join Order Construct Query Diagrams, Data Models, and Join Trees Build and use Count / Filter / and Reconstruction Queries Identify Waste in a Query Execution Plan Zero in on Cardinality Divergence using Estimated vs. Actuals Use the ACCESS / FILTER / COVERAGE strategy to build indexes for Problem Queries Exploit THE 2% RULE in analyzing Access method and Join method Classify queries as Precision Style or Warehouse Style Understand Hash Join mechanics and make Hash Joins go faster Make HINTS work as Detection Tools rather than clubs Avoid early Database Design flaws Manage Statistics and deal with common Statistics problems (NDV, Uniform Distribution, Independence, Dynamic Sampling) (Staleness, Skew, Dependence, Defaulting, Out-Of-Bounds, Transiency, Bloat) Perfect your Question Based Analysis Technique and more Included are: a special chapter for EXADATA, a LAB which demonstrates the cardinality based process of SQL Tuning, and twenty three magical SQL scripts that make the process of SQL Tuning easy to do. Learn the skill of SQL Tuning as taught by an expert who does it for a living, and become the go-to specialist in your company. Chapter 1: DRIVING TABLE and JOIN ORDER Chapter 2: Ways to Use a Query Execution Plan Chapter 3: The Best Indexes for a Query Chapter 4: JOINS Chapter 5: HINTS Chapter 6: BASICS Chapter 7: ROW COUNTS and RUN TIMES Chapter 8: EXADATA LAB: Reverse Engineering the QEP Appendix: Know Your Scripts Scripts for analyzing queries and plans Scripts for examining an active database Scripts for looking at metadata showplan showplanshort showplanconstraints showplancountqueries showplandatamodel showplandrivingtable showplanfilterqueries showplanfrpspreadsheetcode showplanindexes showplannumrows showplanquerydiagram showplantables showplantablesunique loadplanfromcache loadplanfromhist showtopcpu showowner showindexes showconstraints showcolstats showhistograms showallscanrates showallworkareas It's all about the Cardinalities

*SQL Server Query Performance Tuning* McGraw Hill Professional Master the Cutting-Edge Features of Oracle Database 12c Maintain a scalable, highly available enterprise platform and reduce complexity by leveraging the powerful new tools and cloud enhancements of Oracle Database 12c. This authoritative Oracle Press guide offers complete coverage of installation, configuration, tuning, and administration. Find out how to build and populate Oracle databases, perform effective queries, design applications, and secure your enterprise data. Oracle Database 12c: The Complete Reference also contains a comprehensive appendix covering commands, keywords, features, and functions.

Set up Oracle Database 12c or upgrade from an earlier version  
 Design Oracle databases and plan for application implementation  
 Construct SQL and SQL\*Plus statements and execute powerful queries  
 Secure data with roles, privileges, virtualization, and encryption  
 Move data with SQL\*Loader and Oracle Data Pump  
 Restore databases using flashback and the Oracle Database Automatic Undo Management feature  
 Build and deploy PL/SQL triggers, procedures, and packages  
 Work with Oracle pluggable and container databases  
 Develop database applications using Java, JDBC, and XML  
 Optimize performance with Oracle Real Application Clusters

*Oracle SQL Tuning Pocket Reference* Apress

A poorly performing database application not only costs users time, but also has an impact on other applications running on the same computer or the same network. SQL Tuning provides an essential next step for SQL developers and database administrators who want to extend their SQL tuning expertise and get the most from their database applications. There are two basic issues to focus on when tuning SQL: how to find and interpret the execution plan of an SQL statement and how to change SQL to get a specific alternate execution plan. SQL Tuning provides answers to these questions and addresses a third issue that's even more important: how to find the optimal execution plan for the query to use. Author Dan Tow outlines a timesaving method he's developed for finding the optimum execution plan--rapidly and systematically--regardless of the complexity of the SQL or the database platform being used. You'll learn how to understand and control SQL execution plans and how to diagram SQL queries to deduce the best execution plan for a query. Key chapters in the book include exercises to reinforce the concepts you've learned. SQL Tuning concludes by addressing special concerns and unique solutions to "unsolvable problems." Whether you are a programmer who develops SQL-based applications or a database administrator or other who troubleshoots poorly tuned applications, SQL Tuning will arm you with a reliable and deterministic method for tuning your SQL queries to gain optimal performance.

*The Art of SQL* Rampant TechPress

For all the buzz about trendy IT techniques, data processing is still at the core of our systems, especially now that enterprises all over the world are confronted with exploding volumes of data. Database performance has become a major headache, and most IT departments believe that developers should provide simple SQL code to solve immediate problems and let DBAs tune any bad SQL later. In *The Art of SQL*, author and SQL expert Stephane Faroult argues that this safe approach only leads to disaster. His insightful book, named after *Art of War* by Sun Tzu, contends that writing quick inefficient code is sweeping the dirt under the rug. SQL code may run for 5 to 10 years, surviving several major releases of the database management system and on several generations of hardware. The code must be fast and sound from the start, and that requires a firm understanding of SQL and relational theory. *The Art of SQL* offers best practices that teach experienced SQL users to focus on strategy rather than specifics. Faroult's approach takes a page from Sun Tzu's classic treatise by viewing database design as a military campaign. You need knowledge, skills, and talent. Talent can't be taught, but every strategist from Sun Tzu to modern-day generals believed that it can be nurtured through the experience of others. They passed on their experience acquired in the field through basic principles that served as guiding stars amid the sound and fury of battle. This is what Faroult does with SQL. Like a successful battle plan, good architectural choices are based on contingencies. What if the volume of this or that table increases unexpectedly? What if, following a merger, the number of users doubles? What if you

want to keep several years of data online? Faroult's way of looking at SQL performance may be unconventional and unique, but he's deadly serious about writing good SQL and using SQL well. *The Art of SQL* is not a cookbook, listing problems and giving recipes. The aim is to get you-and your manager-to raise good questions.

*Oracle Applications Performance Tuning Handbook* Apress

Proven Database Optimization Solutions—Fully Updated for Oracle Database 12c Release 2 Systematically identify and eliminate database performance problems with help from Oracle Certified Master Richard Niemiec. Filled with real-world case studies and best practices, *Oracle Database 12c Release 2 Performance Tuning Tips and Techniques* details the latest monitoring, troubleshooting, and optimization methods. Find out how to identify and fix bottlenecks on premises and in the cloud, configure storage devices, execute effective queries, and develop bug-free SQL and PL/SQL code. Testing, reporting, and security enhancements are also covered in this Oracle Press guide.

- Properly index and partition Oracle Database 12c Release 2
- Work effectively with Oracle Cloud, Oracle Exadata, and Oracle Enterprise Manager
- Efficiently manage disk drives, ASM, RAID arrays, and memory
- Tune queries with Oracle SQL hints and the Trace utility
- Troubleshoot databases using V\$ views and X\$ tables
- Create your first cloud database service and prepare for hybrid cloud
- Generate reports using Oracle's Statspack and Automatic Workload Repository tools
- Use sar, vmstat, and iostat to monitor operating system statistics

*Oracle Database 12c Release 2 Performance Tuning Tips & Techniques* Rampant Techpress

This book is the first of its kind, a book dedicated to tuning the Oracle high availability RAC architecture. Oracle RAC databases are flexible and robust, and along with this flexibility comes complexity, making RAC tuning one of the most challenging areas of Oracle tuning. Packed with incisive insights and examples from one of America's leading RAC experts, guru Brian Peasland delivers an indispensable book for all RAC administrators who need to guarantee that their RAC systems run at optimal performance. It's not enough for the DBA to maintain and control RAC database, the RAC DBA must also have an arsenal of tools and scripts that will help them ensure that their RAC database run at optimal levels. This book will be valuable to all Oracle professionals who must tune their Oracle RAC systems for peak performance. Similar to tuning Oracle database systems in general, Oracle RAC performance tuning covers a wide variety of focus areas. Topics will include Oracle wait events specific to RAC deployments, using Oracle Enterprise Manager Grid Control and AWR in diagnosing RAC problems, and RAC utilities such as OS Watcher and ORAchK (formerly RACcheck). This book will also discuss architecture issues related RAC performance, delving into the cluster interconnect, physical disk layout and Oracle 12c new Flex Clusters. Oracle RAC also allows the workload the spread among several low cost servers (scale-out) rather than a large single server (scale-up), and this book examines these approaches from a tuning perspective. Many companies are working towards private cloud implementations using RAC, and this book is perfect for the DBA's charged with . Oracle 12c RAC raises the bar with its new multi-tenant database implementation. Think of multi-tenant as virtualization at the database level. As more companies start leveraging Oracle 12c RAC for their enterprise database architecture, it is important that the system be designed and tuned properly to ensure the application has a well-performing user experience. This unique book provides a one-stop location for any RAC DBA who must become a RAC performance tuning specialist. Most Oracle RAC books on the market devote only one chapter to performance

tuning. The information in this book provides a solid foundation for one's first RAC deployment, and provide you with the tools and methods needed to keep your complex RAC systems running optimally. While this book is not for beginners, the reader is given sufficient background throughout the chapters so that most Oracle DBAs, even those with little Oracle RAC experience, will be able to understand its contents. Oracle RAC is inherently complex. This explains the concepts before delving into highly technical areas. Many in-depth areas of RAC tuning are explored that help the DBA reveal hidden performance trends within even the most complex RAC database.

**Mastering Oracle SQL** McGraw Hill Professional

Performance problems are rarely "problems" per se. They are more often "crises" during which you're pressured for results by a manager standing outside your cubicle while your phone rings with queries from the help desk. You won't have the time for a leisurely perusal of the manuals, nor to lean back and read a book on theory. What you need in that situation is a book of solutions, and solutions are precisely what Oracle Database 12c Performance Tuning Recipes delivers. Oracle Database 12c Performance Tuning Recipes is a ready reference for database

administrators in need of immediate help with performance issues relating to Oracle Database. The book takes an example-based approach, wherein each chapter covers a specific problem domain. Within each chapter are "recipes," showing by example how to perform common tasks in that chapter's domain. Solutions in the recipes are backed by clear explanations of background and theory from the author team. Whatever the task, if it's performance-related, you'll probably find a recipe and a solution in this book. Provides proven solutions to real-life Oracle performance problems Offers relevant background and theory to support each solution Gets straight to the point for when you're under pressure for results

*Oracle Performance Survival Guide: A Systematic Approach To Database Optimization* McGraw-Hill Companies

A reference for any Oracle database administrators who must ensure the consistency of data across distributed platforms, this book is for those administrators who recognize the benefits of distributing Oracle data. The intricacies of Oracle multi-master replication are described, and working code examples of complex multi-master replication are provided. Also included is information on Oracle replication tuning and monitoring.

Best Sellers - Books :

- [Twisted Hate \(twisted, 3\) By Ana Huang](#)
- [America's Cultural Revolution: How The Radical Left Conquered Everything By Christopher F. Rufo](#)
- [Reminders Of Him: A Novel By Colleen Hoover](#)
- [A Court Of Thorns And Roses Paperback Box Set \(5 Books\)](#)
- [I Love You To The Moon And Back By Amelia Hepworth](#)
- [The Going To Bed Book By Sandra Boynton](#)
- [House Of Flame And Shadow \(crescent City, 3\)](#)
- [The Housemaid's Secret: A Totally Gripping Psychological Thriller With A Shocking Twist](#)
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- [The Nightingale: A Novel By Kristin Hannah](#)