

Oracle Database 10g: SQL Tuning

Duration: 3 Days

What you will learn

This course is designed to give the experienced SQL Developer or DBA a firm foundation in SQL tuning techniques. The participant learns the necessary knowledge and skills to effectively tune SQL in the Oracle Database 10g Release 2. They learn about tuning methodology as well proactive tuning and reactive tuning methods. Students are introduced to the benefits of the new automatic tuning mechanisms available in Oracle Database 10g. On completion of the course they are able to compare and contrast the steps involved to tune manually as in prior releases as well as use the automatic SQL tuning features provided in the current release. Students gain a thorough conceptual understanding of the Oracle Optimizer, and reinforce instructor-led learning with structured hands-on practices. The course uses a series of challenge-level workshops, allowing students to "play, discover, and learn" at their own level and pace. The students learn to use the Oracle diagnostic tools and facilities: Automatic SQL Tuning components, EXPLAIN, SQL Trace and TKPROF, SQL*Plus AUTOTRACE. Students also learn to influence the behavior of the Optimizer by changing the physical schema and modifying SQL statement syntax. This course counts towards the Hands-on course requirement for the Oracle Database 10g Administrator Certification. Only instructor-led inclass or instructor-led online formats of this course will meet the Certification Hands-on Requirement. Self Study CD-Rom and Knowledge Center courses DO NOT meet the Hands-on Requirement.

Audience

Business Intelligence Developer
Forms Developer
Java Developer
PL/SQL Developer
Reports Developer
Technical Consultant

Prerequisites

Required Prerequisites

Oracle Database 10g: SQL Fundamentals I

Oracle Database 10g: PL/SQL Fundamentals

Course Objectives

Describe the basic steps in processing SQL statements
Describe the causes of performance problems
Understand where SQL tuning fits in an overall tuning methodology
Describe Automatic SQL Tuning
Use the diagnostic tools to gather information about SQL statement processing
Understand Optimizer behavior
Influence the optimizer behavior
Influence the physical data model so as to avoid performance problems

Course Topics

Database Architecture overview

Overview of Database architecture
Listing the SQL Statement Processing Steps
Identifying Means to Minimize Parsing
Stating the Use of Bind Variables

Following a Tuning Methodology

Describing the Causes of Performance Problems
Identifying Performance Problems
Using a Tuning Methodology

Designing Applications for performance

Oracle Methodology
Understanding Scalability
System Architecture
Application Design Principles
Deploying New Applications

Introducing the optimizer

Describe the functions of the Oracle optimizer
Identify the factors that the optimizer considers when it selects an execution plan
Set the optimizer approach at the instance and session level
Use dynamic sampling

Optimizer Operations

Execution plans
Types of Joins

Displaying Execution plans

Using the EXPLAIN PLAN Command
Interpreting EXPLAIN Output
Interpreting AUTOTRACE Statistics

Gathering Statistics

Using the DBMS_STATS Package
Identifying Table, Column, and Index Statistics
Building Histograms

Application Tracing

Statspack
End to End tracing
Invoking the SQL Trace Facility
Setting Up Appropriate Initialization Parameters
Formatting Trace Files with TKPROF
Interpreting the Output of the TKPROF Command

Identifying High Load SQL

Use different methods to identify high-load SQL
ADDM
Top SQL

Dynamic Performance views
Statspack

Automatic SQL Tuning

Query Optimizer Modes
Types of Tuning Analysis
SQL Tuning Advisor
SQL Tuning Sets
Top SQL

Introduction to Indexes

Identifying Row Access Methods
Creating B-Tree Indexes
Understanding B-Tree Index Access and Index Merging

Advanced Indexes

Using Bitmapped Indexes
Using Function-Based Key Indexes

Optimizer Hints and Plan Stability

Using Hints
Purpose and Benefits of Optimizer Plan Stability

Materialized Views and Temporary Tables

Using the CREATE MATERIALIZED VIEW Syntax
Utilizing Query Rewrites

Related Courses

Oracle Database 10g: SQL Tuning Self-Study CD Course NEW