

O1030 - Oracle 10g Performance Tuning

Course Objectives

The course is designed to introduce students to the full functional range of features and technologies within the Oracle 10g RDBMS needed to optimise and tune SQL statements.

This is done through explanation of the different access methods involved and practical based teaching to control the optimal retrieval paths chosen by Oracle.

Where necessary, this involves explanation of Oracle's internal mechanisms, and the supporting hierarchical structures required by a Relational Database.

A practical hands-on course, Oracle 10g SQL Tuning is an essential skill for all Oracle 10g SQL developers and Users to ensure that they maximise the performance of the data retrieval components of their business systems.

Who Should Attend

Oracle Analyst/Programmers
 Oracle Technicians
 Oracle DBA's
 Oracle Developers

Prerequisites

PC fundamentals
 Oracle SQL
 Oracle PL/SQL (recommended)

Duration

2 Days

Course Contents

Introduction

Cause of Performance Problems
 Setting Performance Goals
 The Tuning Cycle
 ORACLE Architecture
 Logical Storage Structures
 Physical Structures
 Memory Structures
 The Shared Pool
 Processes
 Some Administration
 Terminology

Design

Data Design Phase
 Data Model Design
 Online Transaction Processing
 Decision Support Systems
 Multi-purpose Applications

Optimizing SQL

SQL Processing
 Physical Retrieval of Data
 Full Table Scan versus Index Reads
 Performance Diagnostic Tools
 Explain Plan
 SQL Trace Facility
 TKPROF
 Autotrace
 Join Methods

Sort/Merge Joins

Nested Loops
 Hash Joins
 Hash Join Example Data
 Access Methods
 Basic Indexes
 B-Tree Indexes
 Bitmap Index
 Creating and maintaining Bitmap Indexes.
 Comparing B-Tree and Bitmap Indexes
 Reverse Key Index
 Creating Reverse Key Indexes
 Index-Organised Tables
 Creating Index-organised Tables
 Clusters
 Cluster Types

Automatic SQL Tuning

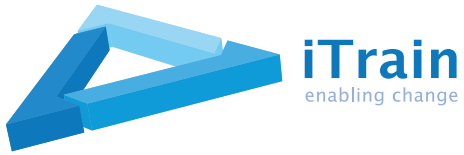
Query Optimizer Modes
 Types of Tuning Analysis
 SQL Tuning Advisor
 SQL Tuning Sets
 Top SQL
 Identify high-load SQL
 ADDM
 Dynamic Performance views
 Statspack

The Optimizer

Optimizing SQL
 The ORACLE Optimizer
 Initialisation parameters affecting the Optimizer.
 Cost Based
 Rule / Cost Comparisons
 Choosing an Approach
 Rule Based Approach
 Multiple WHERE Clauses
 Using Indexes without a WHERE clause
 Using Indexes for Sorts
 Multiple Table Joins
 Disabling Indexes
 Use of NOT IN / NOT EXISTS
 Cost Based Optimizer
 Cost Based Optimizer Operation
 Hints.
 Sharing SQL Statements
 Other SQL Tuning Tips

Gathering Statistics

Analyzing Statistics
 DBMS_STATS
 Histograms
 How to Generate Histograms
 Statistics
 Migration from Rule to Cost based Optimization Plan
 stability:-Stored Outlines.



COURSE OVERVIEWS

Optimising PL/SQL
Module Performance
Registering a Module
Tracking a Module

Advanced Tuning
Star Queries
Materialized Views
Refreshing Views
Materialized View Logs
Temporary Tables