
Oracle Database: Performance Tuning

Course Length: 5 days

Course Description

This course provides students with the concepts needed to properly tune their Oracle® database for optimal performance. You will learn about the tools used to monitor, analyze, measure, and tune your database. This course also helps you prepare for Oracle's exam, Oracle Database: Performance Tuning (1Z0-033).

Prerequisites: To ensure your success, we recommend you first take the following courses or have equivalent knowledge:

- *Introduction to Oracle*
- *Oracle Database: Fundamentals I*
- *Oracle Database: Fundamentals II*

Delivery Method: Instructor-led, group-paced, classroom-delivery learning model with structured, hands-on activities.

Performance-Based Objectives

- Understand tools and methodologies for tuning your database.
- Monitor and tune the database buffer cache.
- Monitor and tune the library cache, dictionary cache, large pool, and other memory structures.
- Manage Java memory and tune Oracle processes for performance.
- Understand the physical structure of a database and tune disk I/O.
- Identify and correct issues with locks and latches.
- Tune applications by using the correct table and index types.
- Analyze and improve the performance of SQL statements.
- Measure sort performance and manage sort-related parameters.
- Use Oracle Resource Manager to allocate operating system resources and tune the shared server.

Course Content

Lesson 1: Introduction to Performance Tuning

- Topic 1A: Performance, Scalability, and Reliability
- Topic 1B: Software Development Lifecycle
- Topic 1C: Oracle Tuning Tools
- Topic 1D: Tuning Methodology

Lesson 2: Oracle Memory Tuning

- Topic 2A: Oracle Memory Architecture
- Topic 2B: Database Buffer Cache
- Topic 2C: Monitor the Hit Ratio
- Topic 2D: Buffer Cache Advisory Statistics
- Topic 2E: Other Buffer Tuning Issues

Lesson 3: Oracle Memory II

- Topic 3A: Shared Pool Structure
- Topic 3B: Oracle Library Cache and Dictionary Cache
- Topic 3C: The Large Pool
- Topic 3D: Process and Session Memory

Lesson 4: Other Instance Values

- Topic 4A: Manage Java Memory
- Topic 4B: Database Writer Processes
- Topic 4C: The Redo Log Buffer
- Topic 4D: Database Checkpoints

Lesson 5: Database I/O

- Topic 5A: Manage the Physical Layout of Oracle
- Topic 5B: Redo Log Files
- Topic 5C: Temporary Tablespaces
- Topic 5D: Undo Management

Lesson 6: Locks and Latches

- Topic 6A: Locks
- Topic 6B: Lock Contention
- Topic 6C: Oracle Latches

Lesson 7: Application Tuning

- Topic 7A: Review of Terminology and Concepts
- Topic 7B: Table Types
- Topic 7C: Index Types
- Topic 7D: Partitioned Objects

Lesson 8: Tuning SQL Statements

- Topic 8A: Overview of SQL Execution
- Topic 8B: Database Object Statistics
- Topic 8C: Hints and Plan Stability
- Topic 8D: Resource-intensive SQL
- Topic 8E: Histograms

Lesson 9: Sorts

Topic 9A: Sorts

Topic 9B: Sort Parameters for Dedicated Servers

Topic 9C: Sort Parameters for Shared Servers

Lesson 10: Other Tuning Topics

Topic 10A: Use Performance Manager to Monitor an Operating System

Topic 10B: Database Resource Manager

Topic 10C: Shared Server Tuning