Parallel Processing in Oracle Database 12c

This Parallel Processing in Oracle Database 12c training teaches you the benefits of parallelizing requests in a 12c database & use features of parallel processing. View recorded demos of parallel processing in various database server configurations.

Learn To

After completing this seminar, you'll understand the benefits of parallelizing requests in an Oracle 12c database. You'll also be able to use features of parallel processing introduced in Oracle 11g Release 1 and 2.

Learn To:

- Optimize SQL statement execution using parallel processing.
- Use parallel processing appropriately to derive a benefit over serial processing.
- Control the use of parallel processing.
- Use a variety of features for parallelizing statements.
- Read execution plans of parallelized statements.
- Troubleshoot different issues associated with parallel processing.
- Use, control and manage parallelization.

Benefits To You

Through focused lessons and hands-on demonstrations, expert Oracle University instructors will teach you when and why parallel processing is relevant and effective. You'll also explore specific configurations like RAC database and Database Machine.

Prerequisites

Required Prerequisite

- Oracle Database 12c: SQL Tuning for Developers Ed 1
- Knowledge of database administration

Audience

- Administrator
- Database Administrator
- Developer
- Developer

Course Objectives

- Use Database Resource Manager to complement the control of parallel processing usage
- Define why and when to use parallel processing
- List the SQL statements and data loading utilities that can benefit from parallel processing
- Explain the basic concepts and theory associated with parallel execution
- Use a variety of parallel execution features with different SQL statements
- Read and evaluate execution plans for parallelized statements

- Use parallel processing features including Auto DOP, statement-queuing, and in-memory parallel execution
- Examine specific configurations such as RAC database to and Database Machine with parallel execution
- Troubleshoot parallel processing issues such as no parallel execution, unexpected DOP, or performance decrease
- Trace parallel execution to provide information to Oracle customer support

Course Topics

Parallel execution concepts

- Benefits of parallel processing
- When to use parallel processing?
- Query Coordinator and parallel execution (PX) servers
- Parallel execution communication
- The producer / consumer model
- Execution plan basics

Using Manual DOP

- Statements that can be parallelized
- SELECT with single parallel table scan and the explain plan
- SELECT with parallel hash join and the explain plan
- Parallelized SELECT with partition wise join and the advantages
- Parallelized DML operations

Using Auto DOP

- Auto DOP versus manual DOP
- Auto DOP parameters
- Auto DOP behavior
- Impact of Auto DOP on other parameters
- SELECT explain plan with Auto DOP
- Auto DOP in RAC environment

Using Statement Queuing

- Comparing statement queuing to minimal DOP guarantee
- Setting parameters
- When to choose statement queuing
- Using Database Resource Manager with statement queuing
- Viewing queued statements

In-Memory Parallel Execution

- The goal of In-Memory Parallel Execution
- How SELECT works with and without in-memory parallel execution
- Set parameters to use In-Memory parallel execution
- In-memory PX examples

Parallel Execution and Data Loading

- DataPump export / import
- SQL*Loader

- External tables: applying parallel execution as best practice

Troubleshoot situations when parallel processing does not proceed as desired

- When parallel processing does not proceed as desired
- When no parallel processing occurs
- When Auto DOP computes unexpected DOP
- When Statement Queuing starts unexpectedly
- When performance decreases due to parallel execution
- Tracing parallel execution

Managing a Mixed Workload with DBRM

- Take advantage of DBRM to manage concurrent parallel executions with mixed workloads
- Use plan directives to manage concurrent parallel executions
- How to reject queries
- Using dynamic switching
- Understanding how directives interact