

Oracle Database 11g: Administer a Data Warehouse - LVC

Duration: 4 Days

What you will learn

Students learn about Oracle's Database partitioning architecture and identify the benefits of partitioning. Students also use parallel operations to reduce response time for data-intensive operations. Participants extract, transform, and load data into an Oracle database warehouse. Students also use materialized views to improve the data warehouse performance. Students also learn how query rewrite can improve a query's performance. Students use the SQL Access Advisor to optimize the entire workload. Finally, students learn how to tune materialized views for fast refresh and query rewrite and how to use the compression and resumable sessions features.

Learn to:

Implement partitioning

Use parallel operations to reduce response time

Extract, Transform, and Load data

Create, use, and refresh materialized views to improve the data warehouse performance

Use Query rewrite to quickly answer business queries using materialized views

Use SQL Access Advisor and PL/SQL procedures to tune materialized views for fast refresh and query rewrite

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Audience

Application Developers

Data Warehouse Administrator

Data Warehouse Developer

Database Administrators

Support Engineer

Technical Consultant

Prerequisites

Required Prerequisites

Good working knowledge of data warehouse design

Ability to read and understand execution plans

Good working knowledge of SQL and in data warehouse design and implementation

Good working knowledge of SQL

Suggested Prerequisites

Oracle 10g: Data Warehousing Fundamentals

Course Objectives

Review the basic Oracle data warehousing concepts

Use parallel operations to reduce response time for data-intensive operations

Extract, Transform, and Load data in the data warehouse

Create, use, and refresh materialized views to improve the data warehouse performance

Use Query rewrite to quickly answer business queries using materialized views

Use SQL Access Advisor and PL/SQL procedures to tune materialized views for fast refresh and query rewrite

Use the features of compression and resumable sessions

Course Topics

Introduction

Development Tools

Oracle SQL Developer

Enterprise Manager

Sample Schemas used

Data Warehouse Design: Overview

What is a Data Warehouse?

Characteristics of a Data Warehouse

Comparing OLTP and Data Warehouses

Data Warehouse Architectures

Data Warehouse Design

Data Warehouse objects

Data Warehouse Schemas

Star Transformation

Partitioning Basics

Partitioned Tables and Indexes

Partitioning Methods

Partitioning Types

Partition Pruning and Star queries

Parallelism Concepts

Operations That Can Be Parallelized

How Parallel Execution Works

Degree of Parallelism

Parallel execution plan

Parallel Operations in Data Warehouses

Parallel Query

Parallel DDL

Parallel DML

Tuning Parameters for Parallel Execution

Balancing the Workload

ETL: Extraction and Transportation

Extraction Methods

- Capturing Data With Change Data Capture
- Sources and Modes of Change Data Capture
- Publish and Subscribe Model: The Publisher and the Subscriber
- Synchronous and Asynchronous CDC
- Asynchronous AutoLog Mode and Asynchronous HotLog Mode
- Transportation in a Data Warehouse
- Transportable Tablespaces

ETL: Loading

- Loading Mechanisms
- Applications of External Tables
- Defining external tables with SQL*Loader
- Populating external tables with Data Pump
- Other Loading Methods

ETL: Transformation

- Data transformation
- Transformation Mechanisms
- Transformation Using SQL
- Table Functions
- DML error logging

Materialized Views

- The Need for Summary Management
- Types of Materialized Views
- Using Materialized Views for Summary Management
- Materialized View Dictionary views

Refreshing Materialized Views

- Refresh Options
- Refresh Modes
- Conditions That Effect Possibility of Fast Refresh
- Materialized View Logs
- Partition Change Tracking (PCT) Refresh
- Refresh Performance Improvements

Working With Dimensions

- What Are Dimensions
- Creating Dimensions and Hierarchies
- Dimensions and Privileges
- Dimension Restrictions
- Verifying Relationships in a Dimension
- Dimension Invalidation

Query Rewrite

- Query Rewrite: Overview
- What Can be Rewritten
- Conditions Required for Oracle to Rewrite a Query
- Query Rewrite guidelines
- Setting Initialization Parameters for Query Rewrite
- Query Rewrite Methods
- Partition Change Tracking (PCT) and Query Rewrite

Query Rewrite Enhancement to Support Queries Containing Inline Views

Using the SQL Access Advisor, Compression, and Resumable Sessions

SQL Access Advisor: Usage Model

Setting Initial Options

Specifying the Workload Source

Recommendation Options

Schedule and Review

PL/SQL Procedure Flow

Tuning Materialized Views for Fast Refresh and Query Rewrite

Table Compression and Resumable Sessions