Oracle Database 12c: Performance Management and Tuning

Duration: 5 Days

What you will learn

In the Oracle Database 12c: Performance Management and Tuning course, learn about the performance analysis and tuning tasks expected of a DBA: proactive management through built-in performance analysis features and tools, diagnosis and tuning of the Oracle Database instance components, and diagnosis and tuning of SQL-related performance issues. In this course, you will be introduced to Oracle Database Cloud Service.

Learn To:

Use the Oracle tuning methodology.
Use Oracle-supplied tools for monitoring and diagnosing SQL and instance performance issues.
Use database advisors to proactively correct performance problems.
Identify and tune problem SQL statements.
Monitor instance performance by using Enterprise Manager.
Tune instance components.
Gain an understanding of the Oracle Database Cloud Service.

Benefits To You:

The DBA will analyze the SQL performance with available tools. The DBA will be introduced to various methods of identifying the SQL statements that require tuning and the diagnostic tools used to find ways to improve performance. This will include the use of statistics, profiles to influence the optimizer, and using the SQL Advisors.

Maintain SQL Performance

A major task of DBAs is to maintain SQL performance across changes. This course introduces Database Replay and SQL Performance Analyzer which help the DBA test and minimize the impact of change.

Influence Instance Behavior

Instance tuning uses the same general method of observing a problem, diagnosing the problem, and implementing a solution. The instance tuning lessons cover the details of major tunable components and describe how you can influence the instance behavior. For each lesson, we will examine the relevant components of the architecture. The course only discusses the architecture to the level required to understand the symptoms and solutions. More detailed explanations are left to other courses, reference material, and the Oracle documentation.

Audience

Data Warehouse Administrator
Database Administrators

Related Training

Required Prerequisites
Suggested Prerequisites
Oracle Database 12c: Install and Upgrade Workshop

Course Objectives
Use the Oracle Database tuning methodology appropriate to the available tools

Utilize database advisors to proactively tune an Oracle Database Instance

Use the tools based on the Automatic Workload Repository to tune the database

Diagnose and tune common SQL related performance problems

Diagnose and tune common Instance related performance problems

Use Enterprise Manager performance-related pages to monitor an Oracle Database

Gain an understanding of the Oracle Database Cloud Service

Course Topics

Introduction
Course Objectives
Course Organization
Course Agenda
Topics Not Included in the Course
Who Tunes?
What Does the DBA Tune?
How to Tune
Tuning Methodology

Basic Tuning Diagnostics
Performance Tuning Diagnostics
Performance Tuning Tools
Tuning Objectives
Top Timed Events
DB Time
CPU and Wait Time Tuning Dimensions
Time Model
Dynamic Performance Views

Using Automatic Workload Repository
Automatic Workload Repository Overview
Automatic Workload Repository Data
Enterprise Manager Cloud Control and AWR
Snapshots
Reports
Compare Periods

**Defining the Scope of Performance Issues**
Defining the Problem
Limiting the Scope
Setting the Priority
Top SQL Reports
Common Tuning Problems
Tuning During the Life Cycle
ADDM Tuning Session
Performance Versus Business Requirements

**Using Metrics and Alerts**
Metrics and Alerts Overview
Limitation of Base Statistics
Benefits of Metrics
Viewing Metric History Information
Viewing Histograms
Server-Generated Alerts
Setting Thresholds
Metrics and Alerts Views

**Using Baselines**
Comparative Performance Analysis with AWR Baselines
Automatic Workload Repository Baselines
Moving Window Baseline
Baselines in Performance Page Settings
Baseline Templates
AWR Baselines
Creating AWR Baselines
Managing Baselines with PL/SQL

**Using AWR-Based Tools**
Automatic Maintenance Tasks
ADDM Performance Monitoring
Using Compare Periods ADDM
Active Session History
New or Enhanced Automatic Workload Repository Views
Emergency Monitoring
Real-time ADDM

**Real-Time Database Operation Monitoring**
Overview
Use Cases
Defining a Database Operation
Scope of a Composite Database Operation
Database Operation Concepts
Identifying a Database Operation
Enabling Monitoring of Database Operations
Identifying, Starting, and Completing a Database Operation

**Monitoring Applications**
Manually Adding Granules to Components
Increasing the Size of an SGA Component
Automatic Shared Memory Management: Overview
SGA Sizing Parameters: Overview

Performance Tuning Summary with Waits
Commonly Observed Wait Events
Additional Statistics
Top 10 Mistakes Found in Customer Systems
Symptoms

Oracle Database Cloud Service: Overview
Database as a Service Architecture, Features and Tooling
Software Editions: Included Database Options and Management Packs
Accessing the Oracle Database Cloud Service Console & Automated Database Provisioning
Managing the Compute Node Associated With a Database Deployment
Managing Network Access to Database as a Service & Scaling a Database Deployment
Performance Management in the Database Cloud Environment
Performance Monitoring and Tuning
What Can be Tuned in a DBCS Environment?