

## Oracle Database 10g: Administration Workshop II Release 2

**Duration:** 5 Days

### What you will learn

This course advances your success as an Oracle professional in the area of database administration. In this class, you'll learn how to configure an Oracle database for multilingual applications. You will practice various methods of recovering the database using RMAN and Flashback technology. Database performance monitoring tools will be covered, in addition to the steps to take to resolve common problems and improve performance. You will also learn how to administer a database efficiently by using database technologies such as the Resource Manager, the Scheduler, Automatic Storage Management (ASM), and VLDB features. You will set up a secure database using Virtual Private Database, and learn how to efficiently move data from database to database. The lesson topics are reinforced with structured hands-on practices and a workshop. This course is designed to prepare you for the corresponding Oracle Certified Professional exam. This course counts towards the Hands-on course requirement for the Oracle Database 10g Administrator Certification. Only instructor-led inclass or instructor-led online formats of this course will meet the Certification Hands-on Requirement. Self Study CD-Rom and Knowledge Center courses are excellent study and reference tools but DO NOT meet the Hands-on Requirement for certification.

### Audience

Database Administrators  
Sales Consultants  
Support Engineer  
Technical Consultant

### Prerequisites

#### *Required Prerequisites*

Knowledge of basic database administration

#### *Suggested Prerequisites*

Oracle Database 10g: Administration Workshop I Release 2  
Oracle Database 10g: SQL and PL/SQL Fundamentals

### Course Objectives

Use RMAN to create and manage backup sets and image copies  
Recover the database to a previous point in time  
Use Oracle Secure Backup to backup and recover a database  
Use Oracle's Flashback technology to recover your database  
Detect block corruptions and take appropriate measures to correct them  
Use the various Database advisors and views to monitor and improve database performance  
Control database resource usage with the Resource Manager  
Simplify management tasks by using the Scheduler  
Review database log files for diagnostic purposes  
Customize language-dependent behavior for the database and individual sessions  
Administer a VLDB  
Implement a secure database  
Transport data across platforms

## Course Topics

### Introduction

Grid Computing  
Oracle Enterprise Manager 10g Product Controls  
Database Architecture Review

### Configuring Recovery Manager

Recovery Manager Features and Components  
Using a Flash Recovery Area with RMAN  
Configuring RMAN  
Control File Autobackups  
Retention Policies and Channel Allocation  
Using Recovery Manager to connect to a target database in default NOCATALOG mode  
Displaying the current RMAN configuration settings  
Altering the backup retention policy for a database

### Using Recovery Manager

RMAN Command Overview  
Parallelization of Backup Sets  
Compressed Backups  
Image Copy  
Whole Database and Incremental Backups  
LIST and REPORT commands  
Enable ARCHIVELOG mode for the database  
Use Recovery Manager

### Oracle Secure Backup

Installation and Configuration  
Implement the Oracle suggested strategy  
RMAN and Oracle Secure Backup  
Database and File-system files backup/restore to tape  
Using obtool and web interface to configure Oracle Secure Backup devices (CLI/GUI)  
Configuring EM for Oracle Secure Backup and test backup to tape (EM)  
Using RMAN to backup your database to tape (CLI)  
Using the OB Web tool to backup file system files

### Recovering from Non-critical Losses

Recovery of Non-Critical Files  
Creating New Temporary Tablespace  
Recreating Redo Log Files, Index Tablespaces, and Indexes  
Read-Only Tablespace Recovery  
Authentication Methods for Database Administrators  
Loss of Password Authentication File  
Creating a new temporary tablespace  
Altering the default temporary tablespace for a database

### Incomplete Recovery

Recovery Steps  
Server and User Managed Recovery commands  
Recovering a Control File Autobackup  
Creating a New Control File

- Incomplete Recovery Overview
- Incomplete Recovery Best Practices
- Simplified Recovery Through RESETLOGS
- Point-in-time recovery using RMAN

## **Flashback**

- Flashback Database Architecture
- Configuring and Monitoring Flashback Database
- Backing Up the Flash Recovery Area
- Using V\$FLASH\_RECOVERY\_AREA\_USAGE
- Flashback Database Considerations
- Using the Flashback Database RMAN interface
- Using Flashback Database EM Interface
- Managing and monitoring Flashback Database operations

## **Dealing with Database Corruption**

- Block Corruption Symptoms: ORA-1578
- DBVERIFY Utility and the ANALYZE command
- Initialization parameter DB\_BLOCK\_CHECKING
- Segment Metadata Dump and Verification
- Using Flashback for Logical Corruption and using DBMS\_REPAIR
- Block Media Recovery
- RMAN BMR Interface
- Dumping and Verifying Segment Metadata

## **Monitoring and Managing Memory**

- Oracle Memory Structures
- Automatic Shared Memory Management
- SGA Tuning Principles
- Database Control and Automatic Shared Memory Management
- Behavior of Auto-Tuned and Manual SGA Parameters
- Resizing SGA\_TARGET
- PGA Management Resources
- Using the Memory Advisor

## **Automatic Performance Management**

- Identifying Tunable Components
- Oracle Wait Events and System Statistics
- Troubleshooting and Tuning Views
- Direct Attach to SGA for Statistic Collection
- Workload Repository
- Advisory Framework
- ADDM Scenarios and Usage Tips
- Using the SQL Tuning and SQL Access Advisor

## **Monitoring and Managing Storage I**

- Database Storage Structures
- Space Management Overview
- Oracle-Managed Files (OMF)
- Row Chaining and Migrating
- Proactive Tablespace Monitoring
- Managing Resumable Space Allocation

SYSAUX Tablespace

Monitoring table and index space usage

## **Monitoring and Managing Storage II**

Automatic Undo Management

Redo Log Files

Table Types

Partitioned Tables

Index-Organized Tables (IOT)

Managing index space with SQL

Configure optimal redo log file size

View “Automatic Tuning of Undo Retention”

## **Automatic Storage Management**

ASM General Architecture and Functionalities

Dynamic Performance View Additions

Managing an ASM Instance

ASM Disk Groups

Using asmcmd Command Line

Migrating Your Database to ASM Storage

Creating an ASM instance in a separate Oracle Home

Migrating a tablespace to use ASM storage

## **VLDB Support**

Creating Bigfile Tablespaces

Packages and data dictionary changes to support VLDB

Creating and maintaining temporary tablespace groups (TTG)

Partitioning and Partitioned Indexes

Skipping unusable indexes

Creating and using hash-partitioned global indexes

DML Error Logging

Interpreting Bigfile ROWIDs

## **Managing Resources**

Database Resource Manager Concepts and Configuration

Creating a New Resource Plan

Active Session Pool Mechanism

Maximum Estimated Execution Time

Creating a Complex Plan

Administering and Monitoring Resource Manager

Resource Plan Directives

Creating Resource Consumer Groups

## **Automating Tasks with the Scheduler**

Scheduler Concepts

Creating a Job Class and a Window

Managing Jobs, Programs, Chains, Events, Schedules, priority

Viewing and Purging Job Logs

Creating a program and a schedule

Creating a job that uses a program and a schedule

Altering the program and schedule for the job and observing the behavior change of the job

Monitoring job runs

## **Database Security**

- Virtual Private Database: Overview
- Creating a Column-Level Policy
- Writing a Policy Function
- Policy Types
- Column level VPD with column masking
- Transparent Data Encryption
- Setting the listener password
- Implement VPD

## **Data Movement**

- External Tables Concepts
- Creating a Directory object and External Table
- Data Pump
- Transport Database
- RMAN CONVERT DATABASE Command
- Transport Tablespace
- Create a Directory Object
- Create a Temporary Table

## **Using Globalization Support**

- Globalization Support Features
- Encoding Schemes
- Database Character Sets and National Character Sets
- Specifying Language-Dependent Behavior
- Locale Variants
- Using Linguistic Comparison and Sorting
- Data Conversion Between Client and Server Character Sets
- Determining the Default NLS Settings

## **Workshop**

- Workshop Methodology, requirements, and setup
- Scenario 1: Database performance
- Scenario 2: Finding and Tuning Inefficient SQL
- Scenario 3: SGA Management - REDO
- Scenario 4: Running out of Undo Space
- Scenario 5: Missing datafile
- Scenario 6: Managing space in a tablespace - REDO
- Scenario 7: Missing TEMP data file

## **Related Courses**

- Oracle Database 10g: Administration Workshop II Self-Study CD Course