# Oracle® Database 11*g*: Administration Workshop II

## Duration: 5 Days
## Method: Instructor-Led

*Certification: Oracle® Database 11g Administrator Certified Professional Exam:*
*Oracle® Database 11g Administration II Code: 1Z0-053*

## Course Description

This training takes the database administrator beyond the basic tasks covered in Workshop I. You'll begin by gaining a deep understanding of the most important responsibilities a DBA has: performing backup and recovery.

## Target Audience

This course is intended for:
- Database Administrators
- Support Engineers
- Technical Consultants
- Technical Administrators

## Prerequisites

To attend this course, candidates should have:
- Taken Oracle® Database 11*g*: Administration Workshop I
- Working knowledge of SQL and how to use PL/SQL® packages

## Course Objectives

Upon successful completion of this course, candidates will be able to:
- Configure the Oracle® Database for optimal recovery
- Configure the database instance such that resources are appropriately allocated among sessions and tasks
- Schedule jobs to run inside or outside of the database
- Use compression to optimize database storage and duplicate a database
- Back and recover a database (and its parts) with RMAN (command-line and Enterprise Manager)
- Use flashback technology to view past states of data and to revert either objects or the entire database back to a past state
- Use an appropriate and flexible memory configuration for your database
- Identify burdensome database sessions and poorly performing SQL

# Course Content

## Module 1: Core Concepts and Tools of the Oracle® Database

- The Oracle® Database Architecture: Overview
- ASM Storage Concepts
- Connecting to the Database and the ASM Instance
- DBA Tools Overview

## Module 2: Configuring for Recoverability

- Purpose of Backup and Recovery (B&R), Typical Tasks and Terminology
- Using the Recovery Manager (RMAN)
- Configuring your Database for B&R Operations
- Configuring Archivelog Mode
- Configuring Backup Retention
- Configuring and Using a Flash Recovery Area (FRA)

## Module3: Using the RMAN Recovery Catalog

- Tracking and Storing Backup Information
- Setting up a Recovery Catalog
- Recording Backups
- Using RMAN Stored Scripts
- Managing the Recovery Catalog (Backup, Export, Import, Upgrade, Drop and Virtual Private Catalog)

## Module 4: Configuring Backup Settings

- Configuring and Managing Persistent Settings for RMAN
- Configuring Autobackup of Control File
- Backup optimization
- Advanced Configuration Settings: Compressing Backups
- Configuring Backup and Restore for Very Large Files (Multi-section)

## Module 5: Creating Backups with RMAN

- RMAN backup types
- Creating and Using the following:
  - o Backup Sets and Image Copies
  - o Whole Database Backup
  - o Configure Backup Destinations
- Creating and Using the following:
  - o Duplexed Backup Sets
  - o Archival Backups
  - o Fast Incremental Backup

## Module 6: Restore and Recovery Task

- Restoring and Recovering
- Causes of File Loss
- Automatic Tempfile Recovery
- Recovering from the Loss of a Redo Log Group
- Recovering from a Lost Index Tablespace
- Re-creating a Password Authentication File
- Complete and Incomplete Recovery
- Other Recovery Operations

## Module 7: Using RMAN to Perform Recovery

- Complete Recovery after Loss of a Critical or Noncritical Data File
- Recovering Image Copies and Switching Files
- Restore and Recovery of a Database in NOARCHIVELOG Mode
- Incomplete Recovery

- Performing Recovery with a Backup Control File
- Restoring from Autobackup: Server Parameter File and Control File
- Restoring and Recovering the Database on a New Host

## Module 8: Monitoring and Tuning RMAN

- Monitoring RMAN Jobs
- Balance Between Speed of Backup Versus Speed of Recovery
- RMAN Multiplexing

- Synchronous and Asynchronous I/O
- Explaining Performance Impact of MAXPIECESIZE, FILESPERSET, MAXOPENFILES and BACKUP DURATION

## Module 9: Diagnosing the Database

- Data Recovery Advisor (DRA)
- Block Corruption
- Automatic Diagnostic Repository (ADR)

- Health Monitor
- The ADR Command-Line Tool, ADRCI

## Module 10: Using Flashback Technology I

- Flashback Technology: Overview and Setup
- Using Flashback Technology to Query Data

- Flashback Table
- Flashback Transaction Query
- Performing Flashback Transaction Backout

## Module 11: Using Flashback Technology II

- Oracle® Total Recall

- Flashback Drop and the Recycle Bin

## Module 12: Performing Flashback Database

- Configuring Flashback Database
- Monitoring Flashback Database

- Performing Flashback Database Operations

## Module 13: Managing Memory

- Oracle® Memory Structures
- Oracle® Database Memory Parameters
- Using Automatic Memory Management

- Automatic Shared Memory Management
- Using Memory Advisors
- Using Data Dictionary Views

## Module 14: Managing Database Performance

- Monitor the Performance of Sessions and Services
- Automatic Workload Repository (AWR)
- Describing the Benefits of Database Replay

- Optimizer Statistics Collection
- Using Statistic Preferences
- Tuning Activities

## Module 15: Managing Performance by SQL Tuning

- SQL Tuning and SQL Advisors
- Using SQL Tuning Advisor
- SQL Access Advisor
- SQL Performance Analyzer Overview

## Module 16: Managing Resources

- Database Resource Manager: Overview and Concepts
- Accessing and Creating Resource Plans
- Creating Consumer Group
- Activating a Resource Plan
- Monitoring the Resource Manager
- Specifying Resource Plan Directives, including:
  - Limiting CPU Utilization at the Database Level
  - Instance Caging

## Module 17: Automating Tasks with the Scheduler

- Using Time-Based, Event-Based, and Complex Schedules
- Describing the Use of Windows, Window Groups, Job Classes, and Consumer Groups
- Simplifying Management Tasks
- Creating a Job, Program, and Schedule
- Multi-Destination Jobs

## Module 18: Managing Space in Blocks

- Free Space Management
- Monitoring Space
- Compressing Data

## Module 19: Managing Space in Segments

- Segment Creation on Demand
- Additional Automatic Space-Saving Functionality
- Shrinking Segments
- Segment Advisor
- Managing Resumable Space Allocation

## Module 20: Managing Space for the Database

- Using 4 KB-Sector Disks
- Transporting Tablespaces
- Transporting Databases

## Module 21: Duplicating a Database

- Purpose and Methods of Cloning a Database
- Using RMAN to Create a Duplicate Database
- Cloning a Database from a Backup
- Duplicate a Database Based on a Running Instance
- Targetless Duplicating a Database