

## Oracle Database 11g: Administration Workshop II (48 hrs.)

This Oracle Database 11g: Administration Workshop II Release 2 training takes the database administrator beyond the basic tasks covered in the first workshop. You'll begin by gaining a deep understanding of the most important responsibilities a DBA has: performing backup and recovery.

### Learn To:

Diagnose and repair data failures with Flashback technology.

Manage space to optimize database storage so you can respond to growing space requirements.

Monitor and manage major database components, including memory, performance and resources.

Secure the availability of your database through appropriate backup and recovery strategies.

Automate DBA tasks with the Scheduler.

### Benefits to You:

Ensure fast, reliable, secure and easy to manage performance. Optimize database workloads, lower IT costs and deliver a higher quality of service by enabling smooth and rapid consolidation within your Datacenter.

**Backup & Recovery :**The concepts and architecture that support backup and recovery, along with the steps required to execute it in various ways and situations, are covered in detail. You'll learn how to define and test your own backup and recovery scenarios.

**Manage Memory Effectively :**You'll also learn how to manage memory effectively, as well as how to perform some performance evaluation and tuning tasks. Instructors will review all types of flashback technologies, scheduling jobs inside and outside of the database and controlling system resource usage.

**Course Requirements :**This course counts towards the Hands-on course requirement for the Oracle Database 11g Administrator Certification.

Only instructor-led in class or instructor-led online formats of this course will meet the Certification Hands-on Requirement. Self Study and Knowledge Center courses DO NOT meet the Hands-on Requirement.

### Course Objectives:

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

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

**Prerequisites:** Oracle Database 11g Database Administration Workshop II

**Suggested Prerequisites :**Working knowledge of SQL and how to use PL/SQL packages

### Audience

Database Administrators

Support Engineer

Technical Administrator

Technical Consultant

## Course Topics:

### Core Concepts and Tools of the Oracle Database

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

### Manage the ASM Instance

- ASM Storage Concepts
- Set up initialization parameter files for ASM instance
- Start up and shut down ASM instances
- Administer ASM disk groups

### 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)

### 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)

### 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 (Multisection)

### Creating Backups with RMAN

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

### 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

### 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

### 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

### Diagnosing the Database

- Data Recovery Advisor (DRA)
- Block Corruption
- Automatic Diagnostic Repository (ADR)
- Health Monitor
- The ADR Command-Line Tool, ADRCI

### Using Flashback Technology I

- Flashback Technology: Overview and Setup
- Using Flashback Technology to Query Data
- Flashback Table
- Flashback Transaction Query
- Performing Flashback Transaction Backout

### Using Flashback Technology II

- Oracle Total Recall
- Flashback Drop and the Recycle Bin
- **Performing Flashback Database**
- Configuring Flashback Database
- Performing Flashback Database Operations
- Monitoring Flashback Database

### Managing Memory

- Oracle Memory Structures
- Oracle Database Memory Parameters
- Using Automatic Memory Management
- Automatic Shared Memory Management
- Using Memory Advisors
- Using Data Dictionary Views

### Managing Database Performance

- Tuning Activities
- Using Statistic Preferences
- Optimizer Statistics Collection
- Monitor the Performance of Sessions and Services
- Automatic Workload Repository (AWR)
- Describing the Benefits of Database Replay

### Managing Performance by SQL Tuning

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

### Managing Resources

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

### Automating Tasks with the Scheduler

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

### Managing Space in Blocks

- Free Space Management
- Monitoring Space
- Compressing Data

### Managing Space in Segments

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

### Managing Space for the Database

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

### 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