



This course takes the database administrator beyond the basic tasks covered in the first administrative workshop. The student begins by gaining a much deeper understanding of possibly the most important job of a DBA – backup and recovery.

Course Topics:

Core Concepts and Tools of the Oracle Database

- The Oracle Database Architecture: Set up initialization parameter files for ASM and database instances
- Explain ASM Storage Concepts
- Connecting to the Database and the ASM Instance
- Administration of ASM disk groups
- DBA Tools Overview

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 - Configure multiple archive log file destinations to increase availability
- 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
- Configure 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
 - Create a multisection, compressed and encrypted backup
 - Duplexed Backup Sets
 - Archival Backups for longterm retention

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 (User managed and server managed recovery)
- Back up and recover a control file

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
- Perform Disaster recovery

Monitoring and Tuning RMAN

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

- Flashback Technology: Overview and Setup
- Using Flashback Technology to Query Data
- Oracle Total Recall
- Flashback Drop and the Recycle Bin
- Flashback Table
- Flashback Transaction Query
- Performing Flashback Transaction Backout
- Set up and use a Flashback Data Archive

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



Managing Performance by SQL Tuning

- SQL Tuning and SQL Advisors
- Using SQL Tuning Advisor
- SQL Access Advisor to tune a workload
- 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:
- 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 - Use advanced Scheduler concepts to prioritize jobs
- Describing the Use of Windows, Window Groups, Job Classes, and Consumer Groups
- Multi-Destination Jobs - Use job chains to perform a series of related tasks

Managing Space in Blocks

- Free Space Management
- Monitoring Space
- Compressing Data

Managing Space in Segments

- Segment Creation on Demand
- Additional Automatic Space-Saving Functionality
- Shrinking Segments - Reclaim wasted space from tables and indexes by using the segment shrink functionality
- Segment Advisor
- Managing Resumable Space Allocation

Managing Space for the Database

- Using 4 KB-Sector Disks
- Concept of Transportable Tablespaces
- Transporting Databases
- Manage resumable space allocation



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