

Oracle Database 11g: Administration Workshop II DBA Release 2

Duration: 5 Days

What you will learn

This course takes the database administrator beyond the basic tasks covered in the first workshop. The student begins by gaining a much deeper understanding of possibly the most important job of a DBA – backup and recovery. The concepts and architecture that support backup and recovery, along with the steps of how to carry it out in various ways and situations, are covered in detail. This includes how to define and test your own backup and recovery scenarios. Also, the DBA learns how to manage memory effectively and how to perform some performance evaluation and tuning tasks, including using some of the advisors. All types of flashback technologies, scheduling jobs inside and outside of the database, and controlling system resource usage are also covered.

Learn To:

Automate DBA tasks with the Scheduler

Diagnose and repair data failures with Flashback technology

Manage space to optimize database storage and to be able to respond to growing space requirements

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

Secure the availability of your database by appropriate backup and recovery strategies

Audience

Database Administrators

Support Engineer

Technical Administrator

Technical Consultant

Prerequisites

Required Prerequisites

Oracle Database 11g Database Administration

Working knowledge of SQL and how to use PL/SQL packages

Suggested Prerequisites

Oracle Database 11g: Administration Workshop I DBA Release 2

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

Course Topics

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

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 Functionality

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