



Oracle Database 10g : Administration Workshop II (Release 2) Course 36 Contact Hours

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 which is one of the two exams required for the OCP DBA 10g certification.

Audience

Database Administrator, Sales Consultants, Support Engineer, Technical Consultant

Prerequisites

Knowledge of basic database administration
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 Outline

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