



Oracle Database 10g: Administration Workshop II Release 2

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.

This course counts towards the Hands-on course requirement for the Oracle Database 10g Administrator Certification. Only instructor-led inclass or instructor-led online formats of this course will meet the Certification Hands-on Requirement. Self Study CD-Rom and Knowledge Center courses are excellent study and reference tools but DO NOT meet the Hands-on Requirement for certification.

Audience

Database Administrators
Sales Consultants
Support Engineer
Technical Consultant

Prerequisites

Knowledge of basic database administration
Oracle Database 10g: Administration Workshop I Release 2

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 Topics

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