

Oracle Database 10g: Administration Workshop II 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