

Oracle Database 18c: Backup and Recovery Workshop

Duration: 5 Days

What you will learn

The student begins by gaining a 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 implementation in various ways and situations are covered in detail. Students gain knowledge of the Recovery Manager (RMAN) command-line interface for various backup, failure, restore, and recovery scenarios, including data duplication.

Extensive hands-on practices and workshop scenarios provide the student with experience in a realistic technical environment. This course includes an interactive workshop that provide participants with opportunities to diagnose and recover from several failure scenarios, based on backup and recovery case studies.

After completing this course, students should be able to evaluate their own recovery requirements and develop an appropriate strategy for backup and recovery procedures.

Learn To:

Develop appropriate backup and recovery procedures to address your business needs.

Implement backup and recovery settings and perform backup operations to disk and tape.

Employ Oracle Database recovery procedures to recover from media and other failures.

Diagnose and repair data failures.

Use flashback technologies and data duplication to complement backup and recovery procedures.

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

Benefits

The student benefits by gaining a 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 implementation steps in various ways and situations, are presented in detail.

Students gain knowledge of the Recovery Manager (RMAN) command-line interface for various backup, failure, restore, and recovery scenarios, including data duplication.

Hands-On Lessons

Extensive hands-on practices and workshop scenarios provide the student with experience in a realistic technical environment. This course includes an interactive workshop that provide participants with opportunities to diagnose and recover from several failure scenarios, based on backup and recovery case studies. After completing this course, students should be able to evaluate their own recovery requirements and develop an appropriate strategy for backup and recovery procedures.

Related Training

Required Prerequisites

Knowledge of Oracle Database 18c

Knowledge of SQL and PL/SQL (for DBA use)

Oracle Database 18c: Administration Workshop

Suggested Prerequisites

Basic knowledge of Linux operating system

Course Objectives

Describe the Oracle Database architecture components related to backup and recovery operations

Describe Oracle Database backup methods and recovery operations that can be used to resolve database failure

Plan effective backup and recovery procedures

Configure the database for recoverability

Use Recovery Manager (RMAN) to create backups and perform recovery operations

Use the Data Recovery Advisor to diagnose and repair failures

Perform an encrypted database backup and restore

Perform tablespace point-in-time recovery

Use Oracle Flashback Technologies to recover from human error

Course Topics

Introduction

- Curriculum Context
- Assess your recovery requirements
- Categories of failures
- Oracle backup and recovery solutions
- Overview of Oracle Secure Backup and Oracle Data Guard
- Oracle Maximum Availability Architecture
- Basic Workshop Architecture

Getting Started

- Review of Oracle Database architecture
- Oracle DBA tools for backup and recovery
- Connecting to Oracle Recovery Manager (RMAN)

Configuring for Recoverability

- RMAN commands
- Configuring and managing persistent settings
- Using the Fast Recovery Area (FRA)
- Multiplexing the control file
- Multiplexing redo log files
- Archiving redo log files

Using the RMAN Recovery Catalog

- Creating and Configuring the Recovery Catalog
- Managing Target Database Records in the Recovery Catalog
- Using RMAN Stored Scripts
- Maintaining and Protecting the Recovery Catalog
- Using Virtual Private Catalogs

Backup Strategies and Terminology

- Backup Terminology
- Balancing Backup and Restore Requirements
- Backing Up Read-Only Tablespaces
- Data Warehouse Backup and Recovery: Best Practices

Performing Backups

- RMAN Backup Types
- Incrementally Updated Backups
- Fast Incremental Backup
- Block Change Tracking
- Oracle-Suggested Backup
- Reporting on Backups
- Managing Backups

Improving Your Backups

- Compressing Backups
- Using a Media Manager
- Backup and Restore for Very Large Files
- Creating and Managing Archival Backups
- Backing Up Recovery Files
- Backing Up the Control File to a Trace File
- Cataloging Additional Backup Files

Using RMAN-Encrypted Backups

- Creating RMAN-Encrypted Backups
- Using Transparent-Mode Encryption
- Using Password-Mode Encryption
- Using Dual-Mode Encryption
- Restoring Encrypted Backups

Diagnosing Failures

- Reducing Problem Diagnosis Time
- Automatic Diagnostic Repository
- Using the Data Recovery Advisor
- Performing Block Media Recovery

Restore and Recovery Concepts

- Restoring and Recovering
- Instance Failure and Instance/Crash Recovery
- Media Failure
- Complete Recovery (Overview)
- Point-in-Time Recovery (Overview)
- Recovery with the RESETLOGS Option

Performing Complete Recovery

- Using RMAN for Recovery in NOARCHIVELOG Mode
- Performing Complete Recovery
- Using Image Files for Recovery
- Using Restore Points

Performing Point-in-Time Recovery

- Performing Database Point-in-Time Recovery
- When to use Tablespace Point-in-Time Recovery (TSPITR)
- TSPITR Architecture
- Performing Fully Automated TSPITR
- Recovering Tables from Backups

Additional Recovery Operations

- Recovery of Server Parameter File (SPFILE)
- Restoring the Control File
- Recovering from the Loss of a Redo Log File Group
- Restoring the Database to a New Host
- Performing Disaster Recovery

Using Flashback Technologies

- Flashback Technology: Overview
- Using Flashback Technology to Query Data
- Flashback Table
- Flashback Transaction Query
- Flashback Drop and the Recycle Bin
- Flashback Data Archive

Using Flashback Database

- Flashback Database Architecture
- Configuring Flashback Database

Performing Flashback Database
Creating Guaranteed Restore Points
Best Practices for Flashback Database

Transporting Data

Transporting Data Across Platforms
Transporting Data with Backup Sets
Database Transport: Using Data Files

Performing Point-in-Time Recovery

When to use TSPITR
TSPITR Architecture
Performing RMAN TS Point-in-time Recovery
Recovering Tables from Backups

Duplicating a Database

Using a Duplicate Database
Choosing Database Duplication Techniques
Comparing the “Push” and “Pull” Methods
Creating a Backup-Based Duplicate Database
Understanding the RMAN Duplication Operation

RMAN Troubleshooting and Tuning

Interpreting RMAN Message Output
Diagnosing Performance Bottlenecks
Tuning RMAN Backup Performance
Configuring RMAN Multiplexing

Backup and Recovery Workshop

Workshop Structure and Approach
Business Requirements for Database Availability and Procedures
Diagnosing the Failures