

Oracle Database 18c: Backup and Recovery Workshop Ed 1

In this course, students learn how to perform backup and recovery based on the related Oracle Database architecture components. Various backup, failure, restore, and recovery scenarios are included so that students learn to evaluate their own recovery requirements and develop an appropriate strategy for backup and recovery procedures. This course includes an interactive workshop, with scenarios that provide participants with opportunities to diagnose and recover from several database related failure situations.

Learn To

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.

Prerequisites

Suggested Prerequisite

- Knowledge of SQL and PL/SQL (for DBA use)
- Knowledge of Oracle Database 18c
- Basic knowledge of Linux operating system

Required Prerequisite

- Oracle Database 18c: Administration Workshop

Audience

- Database Administrators
- Support Engineer
- Technical Consultant
- Technical Administrator
- Data Warehouse Administrator

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

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

Getting Started

- Oracle DBA tools for backup and recovery
- Connecting to Oracle Recovery Manager (RMAN)

- Review of Oracle Database architecture

Configuring for Recoverability

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

Using the RMAN Recovery Catalog

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

Backup Strategies and Terminology

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

Performing Backups

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

Improving Your Backups

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

Using RMAN-Encrypted Backups

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

- Using Transparent-Mode Encryption

Diagnosing Failures

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

Restore and Recovery Concepts

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

Performing Complete Recovery

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

Performing Point-in-Time Recovery

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

Additional Recovery Operations

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

Using Flashback Technologies

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

Using Flashback Database

- Configuring Flashback Database
- Performing Flashback Database
- Flashback Database Architecture
- Creating Guaranteed Restore Points
- Best Practices for Flashback Database

Transporting Data

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

Performing Point-in-Time Recovery

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

Duplicating a Database

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

RMAN Troubleshooting and Tuning

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

Backup and Recovery Workshop

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