

## Oracle Database 12c R2: Backup and Recovery Workshop Ed 3

**Duration:** 5 Days

### What you will learn

In this Oracle Database 12c R2: Backup and Recovery Workshop, students learn how to perform backup and recovery based on the related Oracle Database architecture components. Various backup, failure, restore, and recovery scenarios are provided 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 failure situations.

### 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.

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 the steps of how to carry it out 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 tape backup and data duplication. (Familiarity with basic database tools and utilities, such as, SQL\*Plus, is assumed.)

### 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.

### Audience

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

## Related Training

### *Required Prerequisites*

Knowledge of Oracle Database 12c

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

Oracle Database 12c R2: Install and Upgrade Workshop NEW

Oracle Database 12c R2: Administration Workshop Ed 3

### *Suggested Prerequisites*

Using Oracle Enterprise Manager Cloud Control 13c Ed 1

Using Oracle Enterprise Manager Cloud Control 13c Ed 2

## Course Objectives

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

Perform an encrypted database backup and restore

Perform tablespace point-in-time recovery

Configure the database for recoverability

Describe Cloud Tooling for Backup and Recovery

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

Use Oracle Flashback Technologies to recover from human error

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

Use the Data Recovery Advisor to diagnose and repair failures

Plan effective backup and recovery procedures

## Course Topics

### **Introduction**

Curriculum Context

Assess your recovery requirements

Categories of failures

Oracle backup and recovery solutions

Oracle Maximum Availability Architecture

Oracle Secure Backup

Benefits of using Oracle Data Guard

Basic Workshop Architecture

## **Getting Started**

Core Concepts of the Oracle Database, critical for Backup and Recovery  
Oracle DBA Tools for Backup and Recovery  
Connecting to Oracle Recovery Manager (RMAN)  
Quick Start: A Problem-Solution Approach

## **Configuring for Recoverability**

RMAN commands  
Configuring and managing persistent settings  
Using the Fast Recovery Area (FRA)  
Control File  
Redo Log File  
Archiving Logs

## **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  
Virtual Private Catalogs

## **Backup Strategies and Terminology**

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

## **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 RMAN Multisection Backups, Proxy Copies, Duplexed Backup Sets and Backups of Backup Sets  
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

## **Diagnosing Failures**

- Reducing Problem Diagnosis Time
- Automatic Diagnostic Repository
- Data Recovery Advisor
- Handling Block Corruption

## **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 Recovery, Part I**

- RMAN Recovery in NOARCHIVELOG Mode
- Performing Complete Recovery (of critical and noncritical data files)
- Restoring ASM Disk Groups
- Recovery with Image Files
- Performing Point-in-Time (PITR) or Incomplete Recovery

## **Performing Recovery, Part II**

- Recovery of Server Parameter File, Control File (One and All)
- Redo Log File Loss and Recovery
- Password Authentication File Re-creation
- Index, Read-Only Tablespace, and Tempfile Recovery
- Restoring the Database to a New Host
- Disaster Recovery
- Restoring RMAN Encrypted Backups

## **RMAN and Oracle Secure Backup**

- Oracle Secure Backup Overview and Interface Options
- RMAN and OSB: Overview and Basic Process Flow
- Starting with Oracle Secure Backup
- Configuring Oracle Secure Backup for RMAN
- RMAN Backup and Restore Operations
- Oracle Secure Backup Jobs
- Displaying OSB log files and transcripts for RMAN activities

## **Using Flashback Technologies**

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

## **Using Flashback Database**

- Flashback Database Architecture
- Configuring Flashback Database
- Performing Flashback Database
- 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
- Duplicating Database with "push" an "pull" techniques
- Choosing Database Duplication Techniques
- Creating a Backup-up Based Duplicate Database
- Understanding the RMAN Duplication Operation

## **RMAN Troubleshooting and Tuning**

- Interpreting RMAN Message Output
- Tuning Principles
- Diagnosing Performance Bottlenecks
- RMAN Multiplexing
- Restore and Recovery Performance Best Practices

## **Cloud Tooling for Backup and Recovery**

- Backup Destinations
- Customize Backup Configuration
- On-Demand Backup and Recovery
- Oracle Backup Cloud Service
- Installing the Backup Module

## **Backup and Recovery Workshop**

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