

## Oracle Database 12c: Backup and Recovery Workshop (40 hrs.)

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.)

### Suggested Prerequisite

- Knowledge of Oracle Database 12c
- Knowledge of SQL and PL/SQL (for DBA use)

### Required Prerequisite

- Oracle Database 12c R2: Install and Upgrade Workshop
- Oracle Database 12c R2: Administration Workshop Ed 3
- Using Oracle Enterprise Manager Cloud Control 13c Ed 1

### Course Topics:

#### Introduction

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

## Getting Started

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

## Configuring for Recoverability

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

## Using the RMAN Recovery Catalog

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

## Backup Strategies and Terminology

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

## Performing Backups

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

## Improving Your Backups

- Creating RMAN Multisection Backups, Proxy Copies, Duplexed Backup Sets and Backups of Backup Sets
- Creating and Managing Archival Backups
- Cataloging Additional Backup Files
- Compressing Backups

- Backup and Restore for Very Large Files
- Backing Up Recovery Files
- Backing Up the Control File to a Trace File
- Using a Media Manager

### Using RMAN-Encrypted Backups

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

### Diagnosing Failures

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

### 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 Recovery, Part I

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

### Performing Recovery, Part II

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

### RMAN and Oracle Secure Backup

- Configuring Oracle Secure Backup for RMAN

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

### Using Flashback Technologies

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

### Using Flashback Database

- Configuring Flashback Database
- Flashback Database Architecture
- Best Practices for Flashback Database
- Performing 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

- Duplicating Database with push and pull techniques
- Understanding the RMAN Duplication Operation
- Choosing Database Duplication Techniques
- Creating a Backup-up Based Duplicate Database
- Using a Duplicate Database

### RMAN Troubleshooting and Tuning

- Interpreting RMAN Message Output
- Tuning Principles
- RMAN Multiplexing

- Diagnosing Performance Bottlenecks
- Restore and Recovery Performance Best Practices

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

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

### **Backup and Recovery Workshop**

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