

## Oracle Database 12c R2: Administration Workshop Ed 3

**Duration:** 5 Days

### What you will learn

The Oracle Database 12c R2: Administration Workshop Ed 3 course is designed to provide you with a firm foundation in administration of an Oracle Database. In this course you will gain a conceptual understanding of Oracle Database architecture and learn how to manage an Oracle Database in an effective and efficient manner.

**Learn To:**

Manage an Oracle Database instance.

Configure the Oracle Network environment.

Create and manage storage structures.

Manage and move data.

Create and manage users.

Monitor the database and manage performance.

Create and manage Database as a Cloud Service database deployments.

### Benefits To You

You will benefit from this course as you learn detailed information on the architecture of an Oracle Database instance and database, enabling you to effectively manage your database resources. You learn how to create database storage structures appropriate for the business applications supported by your database. In addition you learn how to create users and administer database security to meet your business requirements. Basic information on backup and recovery techniques is presented in this course.

To provide an acceptable response time to users and manage resources effectively, you learn how to monitor your database and manage performance.

### Audience

Data Warehouse Administrator

Database Administrators

Database Designers

Support Engineer

Technical Administrator

### Related Training

*Required Prerequisites*

A working knowledge of SQL and PL/SQL packages is very helpful in the course.

### *Suggested Prerequisites*

Basic knowledge of Linux operating system

### **Course Objectives**

Back up, restore, and patch DBCS database deployments

Describe the DBaaS and on-premises Oracle Database architectures

Manage database instances

Manage UNDO data

Move data between databases

Implement basic backup and recovery procedures

Monitor and tune database performance

Tune SQL to improve performance

Manage resources with Oracle Database Resource Manager

Create pluggable databases (PDBs)

Configure the Oracle network environment

Administer user security and implement auditing

Create and manage tablespaces

Manage storage space

Create and manage Database as a Cloud Service (DBCS) database deployments

Register databases and manage performance with Enterprise Manager Cloud Control

### **Course Topics**

#### **Getting Started**

Course Objectives

#### **Exploring Oracle Database Architecture**

Introducing Oracle Database

Relation Database Models

Oracle SQL and PL/SQL

Oracle Database Server Architecture

- Connecting to Oracle Databases
- Oracle Database Tools
- Oracle-Supplied User Accounts
- Querying the Oracle Data Dictionary

### **Managing Database Instances**

- Initialization Parameter Files
- Starting Up Oracle Databases
- Shutting Down Oracle Databases
- Opening and Closing PDBs
- Working with the Automatic Diagnostic Repository (ADR)
- Querying Dynamic Performance Views

### **Creating PDBs**

- Methods and Tools to Create PDBs
- Creating PDBs from Seed with SQL\*Plus
- Cloning PDBs with SQL\*Plus
- Unplugging and Pluggin In PDBs with SQL\*Plus
- Dropping PDBs with SQL\*Plus

### **Configuring the Oracle Network Environment**

- Oracle Net Services
- How Listeners Work
- Configuring Listeners for Dynamic Service Registration
- Configuring Listeners for Static Service Registration
- Configuring Local Naming for Connections
- Testing Oracle Net Connectivity with tnsping
- Configuring Communication Between Databases
- Dedicated Versus Shared Server Configurations

### **Administering User Security**

- Creating Users
- Granting Privileges
- Creating and Granting Roles
- Revoking Privileges and Roles
- Creating and Assigning Profiles
- Authenticating Users
- Assigning Quotas to Users
- Applying the Principal of Least Privilege

### **Creating and Managing Tablespaces**

- How Table Data is Stored
- Creating Tablespaces in SQL\*Plus
- Altering and Dropping Tablespaces in SQL\*Plus
- Viewing Tablespace Information in SQL\*Plus
- Implementing Oracle Managed Files
- Moving and Renaming Online Data Files in SQL\*Plus

### **Managing Storage Space**

- Oracle Database Space Management Features
- Block Space Management
- Row Chaining and Migration

- Free Space Management Within Segments
- Types of Segments
- Allocating Extents
- Understanding Deferred Segment Creation
- Space-Saving Features

### **Managing UNDO Data**

- Undo Data: Overview
- Transactions and Undo Data
- Storing Undo Information
- Comparing Undo Data and Redo Data
- Managing Undo
- Local Undo Mode Versus Shared Undo Mode
- Configuring Undo Retention
- Categories of Undo

### **Moving Data**

- Moving Data: General Architecture
- Oracle Data Pump: Overview
- Oracle Data Pump: Benefits
- Data Pump Export and Import Clients
- Data Pump Utility: Interfaces and Modes
- Data Pump Import: Transformations
- SQL\*Loader Overview
- Loading Methods

### **Backup and Recovery Concepts**

- DBA Responsibilities
- Categories of Failure
- Understanding Instance Recovery
- Understanding Types of Backups
- Comparing Complete and Incomplete Recovery
- Oracle Data Protection Solutions
- Flashback Technology

### **Monitoring and Tuning Database Performance**

- Managing Performance Activities
- Performance Planning Considerations
- Database Maintenance
- Automatic Workload Repository (AWR)
- Automatic Database Diagnostic Monitor
- Performance Monitoring
- Performance Tuning Methodology
- Database Server Statistics and Metrics

### **SQL Tuning**

- SQL Tuning Process
- Oracle Optimizer
- Optimizer Statistics
- SQL Plan Directives
- Adaptive Execution Plans
- SQL Tuning Advisor

SQL Access Advisor  
SQL Performance Analyzer

### **Oracle Database Resource Manager**

Oracle Database Resource Manager: Overview  
Resource Manager Elements  
Using Resource Manager to Allocate Resources  
Creating a Simple Resource Plan  
Creating a Complex Resource Plan  
Using the Active Session Pool Feature  
Limiting CPU Utilization at the Database Level  
Limiting CPU Utilization at the Server Level

### **Enterprise Manager Cloud Control**

Controlling the Enterprise Manager Cloud Control Framework  
Starting the Enterprise Manager Cloud Control Framework  
Stopping the Enterprise Manager Cloud Control Framework

### **Introduction to Oracle Database Cloud Service**

Oracle Cloud: Overview  
Database Cloud Service Offerings  
DBCS Architecture  
Features and Tooling  
Additional Database Configuration Options

### **Creating DBCS Database Deployments**

Automated Database Provisioning  
Creating a Database Deployment  
How SSH Key Pairs are Used  
Creating an SSH Key Pair  
Storage Used for Database Files

### **Managing DBCS Database Deployments**

Cloud Tooling  
Accessing Tools and Features from the DBCS Console  
Managing the Compute Node Associated With a Database Deployment  
Managing Network Access to DBCS  
Enabling Access to a Compute Node Port  
Scaling a Database Deployment

### **Backing Up and Restoring DBCS Database Deployments**

Backing Up and Recovering Databases on DBCS  
Backup Destination Choices  
Backup Configuration  
Creating an On-Demand Backup  
Customizing the Backup Configuration  
Performing Recovery by Using the Console  
Performing Recovery by Using the dbaascli Utility

### **Patching DBCS Database Deployments**

Patching DBCS  
Using the DBCS Console to Manage Patches

Using the dbascli Utility to Manage Patches

### **Creating Master Encryption Keys for PDBs**

CDB and PDB Master Encryption Keys

Determining Whether You Need to Create and Activate an Encryption Key for a PDB

Creating and Activating an Encryption Key

### **Tablespace Encryption by Default**

Tablespace Encryption by Default in DBCS

Transparent Data Encryption (TDE) Overview

Components of TDE

Using TDE

Defining the Keystore Location

Controlling Tablespace Encryption by Default

Managing the Software Keystore and Master Encryption Key

Managing the Keystore in CDBs and PDBs