# Oracle Database 12c Administration

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Duration : 5 Days

## Overview

This Oracle Database 12cR2 Administration course is designed to give the Oracle database administrator practical experience in administering, monitoring, tuning and troubleshooting an Oracle 12c database.

A database administrator will gain an understanding of the architecture and processes of the Oracle database server. The delegate will learn how to ensure the integrity and availability of a company's data within the Oracle environment. The delegate will also learn how to monitor the performance of a database, allocate resources with the Resource Manager and schedule jobs with the Oracle Job scheduler.

## Certification

This course will aid the delegate in their preparation for the following exam:

1Z0-075 - Oracle Database 12c Administration
Attending this course will help delegates gain many of the skills and product knowledge requirements as outlined in the exam objectives. Studying this course and its associated reference materials can form part of the preparation to achieve certification. Experience, practice, self-study and aptitude are also key requirements for exam success.

Before taking any exam, ensure you have the recommended experience. The Oracle website lists all exam requirements and these are updated regularly.

Exams are not included as part of the course.

## Target Audience

This Oracle Database 12cR2 Administration course is for anyone who needs to administer, monitor and support an Oracle 12c database.

## Skills Gained

- Administering an Oracle Database Instance
- Monitoring an Oracle Database
- Configuring the Oracle Network Environment
- Creating and Managing Database Storage Structures
- Managing Users, Profiles, Privileges and Roles
- Managing Undo Data and Temporary Segments
- Monitoring and Resolving Lock Conflicts
- Maintaining Database Security
- Implementing Database Auditing
- Monitoring the Performance of the Database
- Loading and Unloading Data
- Using the Job Scheduler
- Configuring a Database for Backup and Recovery

## Prerequisites

Delegates who wish to attend the Oracle Database 12cR2 Administration course should have an understanding of relational database concepts and good operating system knowledge. They should have attended the Oracle SQL course or have a good working knowledge of Oracle SQL. Knowledge of the usage of PL/SQL packages is highly recommended.

This course is run on a Linux operating system, a basic knowledge of UNIX/Linux is recommended but is not essential.

## Objectives

This course aims to provide the delegate with the knowledge required to maintain successful and efficient day-to-day operations of an Oracle 12c database. The delegate will gain practical experience in administering and monitoring an Oracle 12c database.

## Course Content

### DAY 1

#### Session 1: INTRODUCTION TO ORACLE DATABASE 12c
• Overview of the Oracle database 12c
• Overview of the Oracle Cloud
• Relational database concepts
• Database administration tasks

#### Session 2: ORACLE DATABASE 12c ARCHITECTURE
• Overview of the Oracle database architecture
• The Oracle database instance
• Oracle Database memory structures
• Process architecture and structures
• Server and client processes
• The Oracle database storage architecture
• Connect to the Oracle database instance

#### Session 3: ADMINISTER A DATABASE INSTANCE
• Administrative tools available to a DBA
• Use SQL*Plus in Oracle to manage a database instance
• Use SQL Developer to manage a database instance
• Administer the database using Enterprise Manager (EM)
• Overview of the Enterprise Manager framework
• Access Enterprise Manager Database Express
• The Enterprise Manager Database Express Home Page
• Enterprise Manager Cloud Control
• Initialization parameter files

#### Session 4: CONFIGURE THE ORACLE NETWORK ENVIRONMENT
• Overview of network configuration
• Oracle Net Listener configuration and management
• Oracle Net naming methods
• Tools for configuring and managing the Oracle network
• Using the Net Configuration Assistant
• Configure client connections with Net Manager
• View listener configuration
• Start and stop the Oracle listener
• Use TNSPING to test Oracle Net connectivity
• Connect to the database
• Configure Net Services with Enterprise Manager

#### Session 5: STORAGE STRUCTURES
• Overview of data storage
• The database block
• Overview of tablespaces and datafiles
• Use Enterprise Manager to view the storage structure of the database
• Create and alter tablespace commands
• Temporary tablespaces
• Create and manage datafiles
• Use OMF
• Drop tablespaces and datafiles

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## DAY 2

### Session 6: MANAGE USERS

- Predefined database administration accounts
- User accounts
- Create a user account
- User authentication
- Change a user's password
- Manage a user account
- Drop a user account
- Monitor user information
- Terminate user sessions

### Session 7: MANAGE PRIVILEGES

- Database access
- Oracle supplied roles
- System and object level privileges
- The grant and revoke commands
- Create, modify and drop roles
- Use predefined roles

### Session 8: MANAGE PROFILES AND RESOURCES

- Overview of user profiles
- Profile resource parameters
- Create profile command
- Manage passwords with profiles
- Control resource usage with profiles
- Maintain profiles

### Session 9: DATABASE AUDITING

- Overview of database security and database auditing
- Security compliance
- Standard auditing
- Unified audit trail
- Separation of audit responsibilities with the AUDIT_ADMIN and AUDIT_VIEWER roles
- Configure the audit trail
- Specify audit options

## DAY 3

### Session 10: DATA CONCURRENCY AND LOCK CONFLICTS

- Levels of locking in Oracle
- Methods used to acquire locks
- Data concurrency
- Possible causes of contention
- DML locks
- Prevent locking problems
- Detect lock contention
- Resolve conflicts

### Session 11: UNDO MANAGEMENT

- Undo data overview
- Monitor and administer undo
- Configure undo retention
- Switch undo tablespaces
- Specify the retention period
- Guarantee undo retention
- Retention period for flashback queries
- View undo space information
- Use the undo advisor
- Size the undo tablespace
- Alter an undo tablespace to a fixed size

### Session 12: BACKUP AND RECOVERY CONFIGURATION

- Oracle backup solutions
- Oracle suggested backup strategy
- Overview of database backup, restore and recover
- Flashback technology
- Types of failure
- Instance recovery
- Tune instance recovery
- The MTTR Advisor
- Media failure
- Configure a database for recoverability

### Session 13: PROACTIVE DATABASE MAINTENANCE

- Database Maintenance
- View the alert log
- The Automatic Workload Repository
- Statistic levels
- The Automatic Database Diagnostic Monitoring
- Monitor an Oracle database
- Use the Advisors
- Set up notification rules

### Session 14: PERFORMANCE MANAGEMENT

- Tuning information sources
- Performance monitoring
- Tuning activities
- Performance planning
- Instance tuning
- Performance tuning methodology
- Performance tuning data
- Monitoring performance
- Managing memory

## DAY 4

### Session 15: SQL TUNING

- SQL tuning
- The Oracle Optimizer
- SQL Plan directives
- Adaptive execution plans
- SQL Advisors
- Automatic SQL Tuning results
- Implement automatic tuning recommendations
- SQL Tuning Advisor

### Session 16: MOVING DATA

- Create directory objects
- Data Pump architecture
- Data Pump data dictionary views
- Data Pump interactive mode
- Data Pump API
- Use Data Pump to export data
- Use Data Pump to import data
- Overview of SQL Loader
- Command line parameters
- Record filtering
- Control file keywords
- Datafiles
- SQL Loader data paths
- External Tables

### Session 17: MANAGING RESOURCES WITH RESOURCE MANAGER

- Overview of the Database Resource Manager
- Use the Resource Manager
- Create Resource Plans
- The default maintenance resource manager plan
- Create Resource Plan Directives
- Allocate resources for Resource Plans

### Session 18: AUTOMATE TASKS WITH THE SCHEDULER

- Introduction to the Scheduler
- Access Rights
- Scheduler components and workflow
- Create a Job
- Job Classes
- Use time based, event based schedules
- Create an event based schedule

### DAY 5

### Session 19: MANAGE SPACE

- Overview of space management
- Block space management within segments
- Segment types
- Allocate extents
- Allocate space
- Row chaining and migration
- Create tables without segments

### Session 20: ORACLE SUPPORT

- The Enterprise Manager Support Workbench
- Register for security updates
- Work with Oracle Support
- My Oracle Support integration
- Log Service Requests
- Manage patches
- Apply a patch

## Follow On Courses

Oracle Database 12C Data Guard

## What's Included

For courses held on our premises, complimentary tea, coffee and biscuits are available. Lunch is not provided, however, there is a wide variety of eateries within a short walk of the centre.

Comprehensive course materials and exercises