



Course Overview on Oracle 11g Database Administration (OCP)

Course Description

Oracle Database 11g Administrator Certified Professionals have the skills and expertise to manage the Oracle 11g Database in an enterprise environment.

The OCP: Oracle Certified Professional credential validates the skills and experience required to manage, develop, or implement enterprise-wide databases, middle-ware or applications. The Oracle Database 11g Administrator Certified Professional (OCP DBA 11g) certificate is appropriate for mid to senior level Oracle database administrators. Certified professionals can install, configure, maintain, troubleshoot and backup an Oracle database. OCPs in Database 11g can also configure and manage the Oracle network environment.

Trained and certified Oracle Certified Professionals in DBA 11g can gain employ as a professional database administrator, or build on the OCP to achieve Oracle's highest database certification, the OCM: Oracle Database 11g Administrator Certified Master. There are numerous expert-led training courses and specialized degree programs featuring coursework in Oracle database technologies. Compare the top-rated Oracle training programs online and in your area below.

Oracle's current OCP certificate is recognized as one of the most challenging and comprehensive credentials in the database space; database managers and team leaders are increasingly using the OCP DBA 11g to evaluate the qualifications of candidates for key database positions, even at companies where the Oracle DBMS is not employed.

What you will learn

Here are some of the key skills and expertise of OCP: Oracle Database 11g Administrator Certified Professionals:

- Prepare the Oracle database environment and create a new Oracle database.
- Manage Oracle instances and set database initialization parameters.
- Configure and manage the Oracle network environment.
- Manage storage structures in an Oracle 11g database.
- Manage database user accounts and administer user security.
- Implement Oracle database security and work with auditing.
- Manage Oracle database 11g alerts and thresholds.
- Utilize the enterprise manager support workbench.
- Manually backup Oracle databases and setup automatic backups.
- Use the Data Recovery Advisor to recover the Oracle database.
- Import, export, and transfer data between Oracle databases.
- Understand database architecture and Automatic Storage Management (ASM).
- Configure the Oracle 11g database for recoverability.

- Perform user-managed backup and recovery operations.
- Utilize Flashback Technology and Flashback Operations.
- Manage database memory, space, performance and resources.
- Manage and automate common tasks and jobs with the Scheduler.
- Use the Oracle Recovery Manager (RMAN) to configure a recovery catalog, Create various backups, perform recovery, and duplicate a databases.

Prerequisites:

- Basic understanding of databases
- Working knowledge of RDBMS concepts & SQL
- Working knowledge of Oracle 9i or 10g

Who Should Attend?

- Database Administrators
- Java Developers
- Support Engineer
- Technical Consultant
- Technical Administrator

Duration:

120 Hours

Becoming Oracle Certified:

The process of becoming Oracle Database certified broadens your knowledge and skills by exposing you to a wide array of important database features, functions and tasks. Oracle Database certification teaches you how to perform complex, hands-on activities through labs, study and practice.

Additionally, Oracle certification exams validate your capabilities using real-world, scenario-based questions that assess and challenge your ability to think and perform.

Step1 - Pass this exam.

Pass one SQL Exam:

- [Oracle Database 12c SQL 1Z0-071](#) or
- [Oracle Database 12c: SQL Fundamentals 1Z0-061](#) or
- [Oracle Database 11g: SQL Fundamentals I 1Z0-051](#) or
- [Oracle Database SQL Expert 1Z0-047](#)

Step2 - Pass Exam

- [Oracle Database 11g: Administration I 1Z0-052](#)

Step3 - Pass Exam

- [Oracle Database 11g: Administration II 1Z0-053](#)

Oracle Database 11g: Introduction to SQL (40-Hours)

Course Content:

Introduction to Oracle Database

- List the features of Oracle Database
- Discuss the basic design, theoretical, and physical aspects of a relational database
- Categorize the different types of SQL statements
- Describe the data set used by the course
- Log on to the database using SQL Developer environment
- Save queries to files and use script files in SQL Developer

Retrieve Data using the SQL SELECT Statement

- List the capabilities of SQL SELECT statements
- Generate a report of data from the output of a basic SELECT statement
- Select All Columns
- Select Specific Columns
- Use Column Heading Defaults
- Use Arithmetic Operators
- Understand Operator Precedence
- Learn the DESCRIBE command to display the table structure

Learn to Restrict and Sort Data

- Write queries that contain a WHERE clause to limit the output retrieved
- List the comparison operators and logical operators that are used in a WHERE clause
- Describe the rules of precedence for comparison and logical operators
- Use character string literals in the WHERE clause
- Write queries that contain an ORDER BY clause to sort the output of a SELECT statement
- Sort output in descending and ascending order

Usage of Single-Row Functions to Customize Output

- Describe the differences between single row and multiple row functions
- Manipulate strings with character function in the SELECT and WHERE clauses
- Manipulate numbers with the ROUND, TRUNC, and MOD functions
- Perform arithmetic with date data
- Manipulate dates with the DATE functions

Invoke Conversion Functions and Conditional Expressions

- Describe implicit and explicit data type conversion
- Use the TO_CHAR, TO_NUMBER, and TO_DATE conversion functions
- Nest multiple functions
- Apply the NVL, NULLIF, and COALESCE functions to data
- Use conditional IF THEN ELSE logic in a SELECT statement

Aggregate Data Using the Group Functions

- Use the aggregation functions to produce meaningful reports
- Divide the retrieved data in groups by using the GROUP BY clause
- Exclude groups of data by using the HAVING clause

Display Data From Multiple Tables Using Joins

- Write SELECT statements to access data from more than one table
- View data that generally does not meet a join condition by using outer joins
- Join a table to itself by using a self-join

Use Sub-queries to Solve Queries

- Describe the types of problem that sub-queries can solve
- Define sub-queries
- List the types of sub-queries
- Write single-row and multiple-row sub-queries

The SET Operators

- Describe the SET operators
- Use a SET operator to combine multiple queries into a single query
- Control the order of rows returned

Data Manipulation Statements

- Describe each DML statement
- Insert rows into a table
- Change rows in a table by the UPDATE statement
- Delete rows from a table with the DELETE statement
- Save and discard changes with the COMMIT and ROLLBACK statements
- Explain read consistency

Use of DDL Statements to Create and Manage Tables

- Categorize the main database objects
- Review the table structure
- List the data types available for columns
- Create a simple table
- Decipher how constraints can be created at table creation
- Describe how schema objects work

Other Schema Objects

- Create a simple and complex view
- Retrieve data from views
- Create, maintain, and use sequences
- Create and maintain indexes
- Create private and public synonyms

Control User Access

- Differentiate system privileges from object privileges
- Create Users

- Grant System Privileges
- Create and Grant Privileges to a Role
- Change Your Password
- Grant Object Privileges
- How to pass on privileges?
- Revoke Object Privileges

Management of Schema Objects

- Add, Modify, and Drop a Column
- Add, Drop, and Defer a Constraint
- How to enable and Disable a Constraint?
- Create and Remove Indexes
- Create a Function-Based Index
- Perform Flashback Operations
- Create an External Table by Using ORACLE_LOADER and by Using ORACLE_DATAPUMP
- Query External Tables

Manage Objects with Data Dictionary Views

- Explain the data dictionary
- Use the Dictionary Views
- USER_OBJECTS and ALL_OBJECTS Views
- Table and Column Information
- Query the dictionary views for constraint information
- Query the dictionary views for view, sequence, index and synonym information
- Add a comment to a table
- Query the dictionary views for comment information

Manipulate Large Data Sets

- Use Subqueries to Manipulate Data
- Retrieve Data Using a Subquery as Source
- Insert Using a Subquery as a Target
- Usage of the WITH CHECK OPTION Keyword on DML Statements
- List the types of Multitable INSERT Statements
- Use Multitable INSERT Statements
- Merge rows in a table
- Track Changes in Data over a period of time

Data Management in different Time Zones

- Time Zones
- CURRENT_DATE, CURRENT_TIMESTAMP, and LOCALTIMESTAMP
- Compare Date and Time in a Session's Time Zone
- DBTIMEZONE and SESSIONTIMEZONE
- Difference between DATE and TIMESTAMP

- INTERVAL Data Types
- Use EXTRACT, TZ_OFFSET and FROM_TZ
- Invoke TO_TIMESTAMP, TO_YMINTERVAL and TO_DSINTERVAL

Retrieve Data Using Sub-queries

- Multiple-Column Subqueries
- Pairwise and Nonpairwise Comparison
- Scalar Subquery Expressions
- Solve problems with Correlated Subqueries
- Update and Delete Rows Using Correlated Subqueries
- The EXISTS and NOT EXISTS operators
- Invoke the WITH clause
- The Recursive WITH clause

Regular Expression Support

- Use the Regular Expressions Functions and Conditions in SQL
- Use Meta Characters with Regular Expressions
- Perform a Basic Search using the REGEXP_LIKE function
- Find patterns using the REGEXP_INSTR function
- Extract Substrings using the REGEXP_SUBSTR function
- Replace Patterns Using the REGEXP_REPLACE function
- Usage of Sub-Expressions with Regular Expression Support
- Implement the REGEXP_COUNT function

Oracle Database 11g: Administration Workshop-1(40-hours)

Course Content:

Exploring the Oracle Database Architecture

- Oracle Database Architecture Overview
- Oracle ASM Architecture Overview
- Process Architecture
- Memory structures
- Logical and physical storage structures
- ASM storage components

Installing your Oracle Software

- Tasks of an Oracle Database Administrator
- Tools Used to Administer an Oracle Database
- Installation: System Requirements
- Oracle Universal Installer (OUI)
- Installing Oracle Grid Infrastructure
- Installing Oracle Database Software
- Silent Install

Creating an Oracle Database

- Planning the Database
- Using the DBCA to Create a Database

- Password Management
- Creating a Database Design Template
- Using the DBCA to Delete a Database

Managing the Oracle Database Instance

- Start and stop the Oracle database and components
- Use Oracle Enterprise Manager
- Access a database with SQLPlus
- Modify database installation parameters
- Describe the stages of database startup
- Describe database shutdown options
- View the alert log
- Access dynamic performance views

Manage the ASM Instance

- Set up initialization parameter files for ASM instance
- Start up and shut down ASM instances
- Administer ASM disk groups

Configuring the Oracle Network Environment

- Use Enterprise Manager to create and configure the Listener
- Enable Oracle Restart to monitor the listener
- Use tnsping to test Oracle Net connectivity
- Identify when to use shared servers and when to use dedicated servers

Managing Database Storage Structures

- Storage Structures
- How Table Data Is Stored
- Anatomy of a Database Block
- Space Management in Tablespaces
- Tablespaces in the Preconfigured Database
- Actions with Tablespaces
- Oracle Managed Files (OMF)

Administering User Security

- Database User Accounts
- Predefined Administrative Accounts
- Benefits of Roles
- Predefined Roles
- Implementing Profiles

Managing Data Concurrency

- Data Concurrency
- Enqueue Mechanism
- Resolving Lock Conflicts
- Deadlocks

Managing Undo Data

- Data Manipulation
- Transactions and Undo Data
- Undo Data Versus Redo Data
- Configuring Undo Retention

Implementing Oracle Database Auditing

- Describe DBA responsibilities for security
- Enable standard database auditing
- Specify audit options
- Review audit information
- Maintain the audit trail

Database Maintenance

- Manage optimizer statistics
- Manage the Automatic Workload Repository (AWR)
- Use the Automatic Database Diagnostic Monitor (ADDM)
- Describe and use the advisory framework
- Set alert thresholds
- Use server-generated alerts
- Use automated tasks

Performance Management

- Performance Monitoring
- Managing Memory Components
- Enabling Automatic Memory Management (AMM)
- Automatic Shared Memory Advisor
- Using Memory Advisors
- Dynamic Performance Statistics
- Troubleshooting and Tuning Views
- Invalid and Unusable Objects

Backup and Recovery Concepts

- Part of Your Job
- Statement Failure
- User Error
- Understanding Instance Recovery
- Phases of Instance Recovery
- Using the MTTR Advisor
- Media Failure
- Archive Log Files

Performing Database Backups

- Backup Solutions: Overview
- Oracle Secure Backup
- User-Managed Backup
- Terminology
- Recovery Manager (RMAN)
- Configuring Backup Settings
- Backing Up the Control File to a Trace File
- Monitoring the Flash Recovery Area

Performing Database Recovery

- Opening a Database
- Data Recovery Advisor
- Loss of a Control File

- Loss of a Redo Log File
- Data Recovery Advisor
- Data Failures
- Listing Data Failures
- Data Recovery Advisor Views

Moving Data

- Describe ways to move data
- Create and use directory objects
- Use SQL*Loader to move data
- Use external tables to move data
- General architecture of Oracle Data Pump
- Use Data Pump export and import to move data

Working with Support

- Use the Enterprise Manager Support Workbench
- Work with Oracle Support
- Log service requests (SR)
- Manage patches

Oracle Database 11g: Administration Workshop-II (40-Hours)

Course Content:

Core Concepts and Tools of the Oracle Database

- The Oracle Database Architecture: Overview
- ASM Storage Concepts
- Connecting to the Database and the ASM Instance
- DBA Tools Overview

Configuring for Recoverability

- Purpose of Backup and Recovery (B&R), Typical Tasks and Terminology
- Using the Recovery Manager (RMAN)
- Configuring your Database for B&R Operations
- Configuring Archivelog Mode
- Configuring Backup Retention
- Configuring and Using a Flash Recovery Area (FRA)

Using the RMAN Recovery Catalog

- Tracking and Storing Backup Information
- Setting up a Recovery Catalog
- Recording Backups
- Using RMAN Stored Scripts
- Managing the Recovery Catalog (Backup, Export, Import, Upgrade, Drop and Virtual Private Catalog)

Configuring Backup Settings

- Configuring and Managing Persistent Settings for RMAN
- Configuring Autobackup of Control File
- Backup optimization
- Advanced Configuration Settings: Compressing Backups

- Configuring Backup and Restore for Very Large Files (Multisection)

Creating Backups with RMAN

- RMAN backup types
- Creating and Using the following:
 - Backup Sets and Image Copies
 - Whole Database Backup
 - Fast Incremental Backup
 - Configure Backup Destinations
 - Duplexed Backup Sets
 - Archival Backups

Restore and Recovery Task

- Restoring and Recovering
- Causes of File Loss
- Automatic Tempfile Recovery
- Recovering from the Loss of a Redo Log Group
- Recovering from a Lost Index Tablespace
- Re-creating a Password Authentication File
- Complete and Incomplete Recovery
- Other Recovery Operations

Using RMAN to Perform Recovery

- Complete Recovery after Loss of a Critical or Noncritical Data File
- Recovering Image Copies and Switching Files
- Restore and Recovery of a Database in NOARCHIVELOG Mode
- Incomplete Recovery
- Performing Recovery with a Backup Control File
- Restoring from Autobackup: Server Parameter File and Control File
- Restoring and Recovering the Database on a New Host

Monitoring and Tuning RMAN

- Monitoring RMAN Jobs
- Balance Between Speed of Backup Versus Speed of Recovery
- RMAN Multiplexing
- Synchronous and Asynchronous I/O
- Explaining Performance Impact of MAXPIECESIZE, FILESPERSET, MAXOPENFILES and BACKUP DURATION

Diagnosing the Database

- Data Recovery Advisor (DRA)
- Block Corruption
- Automatic Diagnostic Repository (ADR)
- Health Monitor
- The ADR Command-Line Tool, ADRCI

Using Flashback Technology I

- Flashback Technology: Overview and Setup
- Using Flashback Technology to Query Data
- Flashback Table
- Flashback Transaction Query

- Performing Flashback Transaction Backout

Using Flashback Technology II

- Oracle Total Recall
- Flashback Drop and the Recycle Bin

Performing Flashback Database

- Configuring Flashback Database
- Performing Flashback Database Operations
- Monitoring Flashback Database

Managing Memory

- Oracle Memory Structures
- Oracle Database Memory Parameters
- Using Automatic Memory Management
- Automatic Shared Memory Management
- Using Memory Advisors
- Using Data Dictionary Views

Managing Database Performance

- Tuning Activities
- Using Statistic Preferences
- Optimizer Statistics Collection
- Monitor the Performance of Sessions and Services
- Automatic Workload Repository (AWR)
- Describing the Benefits of Database Replay

Managing Performance by SQL Tuning

- SQL Tuning and SQL Advisors
- Using SQL Tuning Advisor
- SQL Access Advisor
- SQL Performance Analyzer Overview

Managing Resources

- Database Resource Manager: Overview and Concepts
- Accessing and Creating Resource Plans
- Creating Consumer Group
- Specifying Resource Plan Directives, including:
 - Limiting CPU Utilization at the Database Level
 - Instance Caging
 - Activating a Resource Plan
 - Monitoring the Resource Manager

Automating Tasks with the Scheduler

- Simplifying Management Tasks
- Creating a Job, Program, and Schedule
- Using Time-Based, Event-Based, and Complex Schedules
- Describing the Use of Windows, Window Groups, Job Classes, and Consumer Groups
- Multi-Destination Jobs

Managing Space in Blocks

- Free Space Management
- Monitoring Space

- Compressing Data

Managing Space in Segments

- Segment Creation on Demand
- Additional Automatic Space-Saving Functionalit
- Shrinking Segments
- Segment Advisor
- Managing Resumable Space Allocation

Managing Space for the Database

- Using 4 KB-Sector Disks
- Transporting Tablespaces
- Transporting Databases

Duplicating a Database

- Purpose and Methods of Cloning a Database
- Using RMAN to Create a Duplicate Database
- Cloning a Database from a Backup
- Duplicate a Database Based on a Running Instance
- Targetless Duplicating a Database

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