



Enterprise Computing Solutions - Education Services

## TRAINING OFFERING

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# Oracle Database 12c: New Features for Administrators

CODE:	LENGTH:	PRICE:
ORA_D77758	0.5 day(s)	kr28,250.00

## Description

In the Oracle Database 12c: New Features for Administrators Ed2 course, you'll learn about the new and enhanced features and options of Oracle Database 12c. Expert instructors will teach you how these features and options increase security, manageability and performance.

### Learn To:

Manage the Oracle multitenant container databases and pluggable databases. Configure Heat Map and use Automatic Data Optimization. Benefit from Online Datafile Move. Understand the new Temporal capabilities as well as In-Database Archiving with Row-archival. Enforce security with the Unified Auditing, the new administrative privileges, Privilege Analysis, and Data Redaction. Increase SQL performance with the Database In-Memory option, and Full Database In-Memory Caching and the Automatic Big Table Caching features. Benefit from optimizer enhancements such as Adaptive Execution Plans and SQL Plan Directives, Real-Time ADDM and Compare Period ADDM. Use enhanced features of Resource Manager in multitenant container databases and pluggable databases. Understand how and when to use enhancements in Data Pump, partitioning, and SQL.

### Benefits to You:

Ensure fast, reliable, secure and easy to manage performance. Optimize database workloads, lower IT costs and deliver a higher quality of service by enabling consolidation onto database clouds.

### Hands-on Practices and Demonstrations

Hands-on practices and available demonstrations help you learn how to use these new or enhanced features of Oracle Database 12c. You'll explore using Oracle Enterprise Manager Cloud Control and other tools like Oracle Enterprise Manager Database Express SQL Developer to manage, monitor and administer your data center. You will also learn about performance new features of the first patchset of Oracle Database 12c: Full Database In-Memory Caching, the In-Memory Column Store which is one of the most important features of the 12.1 first patchset, and Automatic Big Table Caching.

## Objectives

- Create, manage and monitor multitenant container databases and pluggable databases and their resources consumption with Resource Manager
- Manage datafile online operations, heat map and automatic data optimization, archive data using Row-archival or Temporal Validity and Temporal History
- Manage security by using the new unified auditing, the new privileges, such as SYSBACKUP, the privilege analysis, and by creating and managing Data Redaction policies
- Use the Recovery Manager enhancements
- Manage the database performance with monitoring DB operations, Real-Time ADDM and Compare Period ADDM
- Understand the new in-memory capabilities of the Database In-Memory, Full Database In-Memory Caching, and Automatic Big Table
- Caching Tune the SQL performance using Adaptive Execution Plans, SQL Plan Directives and statistics enhancements
- Explore new Oracle Data Pump features and SQL\*Loader Express Mode
- Use online operations during partition movement and compression, and other DDL operations
- Use partial global partitioned indexes
- Explain new SQL enhancements such as extended data type column and SQL row limiting clause

## Audience

- Administrator
- Cloud Administrator
- Database Administrators
- System Administrator

## Prerequisites

Good knowledge of Oracle Database 11g

### *Required Prerequisites*

Oracle Database 12c: Install and Upgrade Workshop  
Using Oracle Enterprise Manager Cloud Control 12c Ed 2

### *Suggested Prerequisites*

## Programme

### Enterprise Manager and Other Tools

- Enterprise Manager (EM) Cloud Control home page
- Enterprise Manager Express home page versus Enterprise Manager Database Control
- SQL Developer with new functionalities
- OUI, DBCA

### Basics of Multitenant Container Database (CDB)

- Benefits of the multitenant architecture
- Differences between the root container and pluggable database containers
- Structure of the root
- Structure of Pluggable Database (PDB)
- CDB\_xxx and DBA\_xxx views
- Impacts in Security, Data Guard, Oracle GoldenGate, Oracle Streams, XStream, and Scheduler

### Configuring and Creating CDB and PDBs

- Tools: DBCA and SQL\*Plus
- Configuration and creation of CDB
- Exploring the Structure (CDB\_xxx views and EM)
- Tools used: SQL Developer, DBCA and SQL\*Plus and EM Database Express
- Create a new PDB from PDB\$SEED
- Create a PDB from a non-CDB
- Clone a PDB into the same CDB or into another CDB using DB links
- Plug in an unplugged PDB

### Managing CDB and PDBs

- Connect to CDB as administrator
- Connect to a PDB using a service name
- Start up a CDB
- Open / Close a PDB (SQL\*Plus, srvctl, EM)
- Open / Close all PDBs
- Shut down a CDB
- Preserve or discard the PDBs open mode when the CDB restarts
- Change PDB state

### Managing Tablespaces, Common and Local Users, Privileges and Roles

- Create permanent tablespaces in the root and PDBs
- Manage common and local schemas and users in the root and PDBs
- Manage system and object privileges to common and local grantees granted "commonly" or "locally"
- Manage common and local roles granted "commonly" or "locally"

### Managing Backup / Recovery / Flashback

- Backup a whole CDB
- Backup a PDB
- Recover CDB from redo log files, control files, undo datafiles loss
- Recover PDB from PDB datafiles loss
- Flashback at CDB level
- Explain the two methods of migration

## Online Datafile Move and Automatic Data Optimization

- Data classification in 12c : tablespace, group, object, row levels
- Configure heat map
- Automatic movement and compression
- Compression levels and types
- Policy declaration: simple declarative SQL extension
- Customized automated action execution with user-defined function
- Execution in scheduled maintenance windows and by MMON
- Customized schedule with DBMS\_ILM package

## In-Database Archiving

- Challenges of old data in tables and 11g solutions
- In-database archiving new solutions
- Use ROW ARCHIVAL clause to enable row lifecycle state for applications
- Set ROW ARCHIVAL VISIBILITY for session level visibility control
- Use predicate on ORA\_ARCHIVE\_STATE column
- Temporal Validity versus Temporal History (Transaction Time of FDA)
- New clause of CREATE / ALTER TABLE to set a Temporal Validity: PERIOD FOR
- New SQL temporal data type

## Auditing Enhancements

- Review of 11g R2 audit trail implementation
- Overview of the Unified Audit Trail
- Enabling the Unified Audit Trail
- Creating a separate tablespace for the unified audit trail
- Granting the AUDIT\_ADMIN role to a user for audit trail configuration and management
- Configuring the Unified Audit Trail to set a tolerance level for loss of audit records
- Creating audit policies

## Privileges Enhancements

- Implementing Separation of Duty for Database Administration Tasks
- Using Database Privilege Analysis
- Overview of Database Privilege Analysis
- Granting the CAPTURE\_ADMIN role to enable management of privilege captures
- Creating and starting/stopping privilege captures
- Viewing privilege profile data
- Querying DBA\_PRIV\_CAPTURES
- Explaining the purpose of the default ORA\$DEPENDENCY profile

## Oracle Data Redaction

- Overview of Oracle Data Redaction
- Types of Masking Policies
- Administering the EXEMPT REDACTION POLICY system privilege to enable a user to view unmasked values
- Managing Masking Policies
- Best practices for defining policy expressions
- Understanding Masking of Statements Containing Subqueries
- Viewing Information About Masking Policies by Querying REDACTION\_POLICIES and REDACTION\_COLUMNS

## General RMAN New Features and FDA Enhancements

- Making Database Connections With RMAN
- Using the SYSBACKUP Privilege
- Using SQL, DESCRIBE Command, Duplication Operation with the NOOPEN option Backing up and Restoring Very Large Files
- Creating Multisection Backups
- Transporting Data Across Platforms
- Prerequisites and Limitations
- Transporting Data: Processing steps

## Monitoring DB Operations

- Overview
- Use cases
- Current Tools
- Define a DB operation
- Monitoring: Bracketing an Operation
- Monitoring the Progress of Operations
- DB Operation Tuning
- DB Operation Active Report

### **Real-Time ADDM and Compare Period Advisor**

- Emergency Monitoring
- Real time ADDM
- Use cases
- Goals
- Define Workload dimensions
- Reported items
- Root Causes
- Requirements for a report

### **ADR and Network Enhancements**

- ADR file types
- New File types
- New File locations
- New command for ADRCI
- Improve performance by Compression
- Setup Compression

### **In-Memory Column Store**

- In-Memory Database option goals and benefits
- Row format and columnar format
- New SGA component:
- IMCU synchronization
- Deployment and behaviors
- Compression ratio
- New dictionary tables and added columns
- New statistics: IM %

### **In-Memory Caching**

- Setting up Full Database In-Memory Caching
- Using Full Database In-Memory Caching
- Explaining the two buffer replacement algorithms of Automatic Big Table Caching
- Configuring Automatic Big Table Caching with PARALLEL\_DEGREE\_POLICY and DB\_BIG\_TABLE\_CACHE\_PERCENT\_TARGET initialization parameters
- Using Automatic Big Table Caching

### **SQL Tuning**

- Adaptive Execution Plans
- SQL Plan Directives
- Statistics Gathering Performance Improvements
- Histogram Enhancements
- Enhancements to Extended Statistics
- Adaptive SQL Plan Management

### **Resource Manager and Other Performance Enhancements**

- Manage resources between PDBs
- Manage resources within a PDB
- Manage resources with CDB and PDBs plans
- Manage runaway queries

- Control the in-memory database repopulation resource consumption
- Automated maintenance tasks
- Current Architecture: Unix multiprocess / one thread, NT/Windows one process / multithread
- New Architecture: Multiprocess / MultiThread

### **Index and Table Enhancements**

- Multiple indexes on the same set of columns as long as some characteristic is different Create table with INVISIBLE columns
- Support for invisible columns
- Describe online redefinition supports
- Explain LOCK timeout during FINISH\_REDEF\_TABLE
- Describe the Advanced Row Compression
- Using the following DDL statements in an online manner

### **Session Dates**

Ved forespørsel. Vennligst [kontakt oss](#)

### **Tilleggsinformasjon**

[Denne treningen er også tilgjengelig som trening på stedet. Kontakt oss for å finne ut mer.](#)