



## Oracle Database 12c: Administration Workshop II



ora12c249-ver4

Learning Resources Available From The Sideris Training Portal

5 Days

### General Description

This training textbook considers advanced features for Oracle 12c database administrators. Like any major software platform, the management of an Oracle database in a production environment can present challenges. Responding to those challenges requires more than just a basic understanding of database administration.

### Target Audience

The primary target audiences for this textbook are:

- Database administrators
- Storage administrators
- System administrators
- Implementation specialists
- Data center support engineers

### Prerequisites

The entire Oracle database administrator curriculum, including this textbook that you are now reading, has these prerequisites from the Sideris Textbook Series For Oracle Database Developers. Equivalent experience is also acceptable.

- ORACLE DATABASE 12C: SQL FUNDAMENTALS (LEVELS I & II)
- ORACLE DATABASE 12C: PL/SQL FUNDAMENTALS (LEVELS I & II)

With regard to this text and its position within the Sideris Textbook Series For Oracle Administrators these are the required prerequisites, or equivalent experience:

- ORACLE DATABASE 12C: INSTALL & UPGRADE WORKSHOP
- ORACLE DATABASE 12C: ARCHITECTURE & INTERNALS
- ORACLE DATABASE 12C: ADMINISTRATION WORKSHOP

### Certification

This textbook considers subjects helpful for certification as an Oracle Database 12c Administrator Certified Professional (OCP) for "Exam: 1Z0-063: Oracle Database 12c: Advanced Administration".

### Content

Volumes: 2  
Pages: 906  
Hands-on Workshops: 13  
Exercises: 109

### Suggested Next

Readers may next wish to proceed onto these textbooks from this textbook series:

- ORACLE DATABASE 12C: BACKUP & RECOVERY WORKSHOP
- ORACLE DATABASE 12C: RESOURCE MANAGER & SCHEDULER
- ORACLE DATABASE 12C: MANAGE THE MULTITENANT ARCHITECTURE

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### Objectives

The objectives for this course are as follows:

- Within this textbook we will explore these topics:
- Setting metric and alert thresholds for proactive database monitoring by the server alert framework.
- Globalization features within the database to support applications in multiple languages, currencies, time zones and countries.
- Database connection and session options that support thousands of concurrent users, including a shared servers configuration.
- Automatic database management, monitoring and tuning facilities. Included are automatic management of storage space and memory resources within the database and the role of the Segment Advisor and Memory Advisors.
- Automatic resumption of database operations even in the face of storage space allocation failures and errors.
- Protecting data-at-rest in the database using the advanced data security feature Transparent Data Encryption, as well as a solid overview of underlying encryption technologies, protocols and algorithms.
- Protecting data en route with Oracle Net Services encryption.
- An introduction to advanced space management topics, including custom space management attributes, resumable space allocation and other subjects.
- Advanced compression techniques for tables and indexes.
- Columnar vs. row-oriented database storage and the use of hybrid columnar compression.
- Heat map tracking of segment access to measure hot, warm and cold areas of the database that could be targeted for optimization.
- ILM data management and support for that framework with available features of the Oracle database.
- Automatic data optimization and policies that automatically implement the ILM concepts of row-level compression tiering, segment-level compression tiering and segment-level storage tiering.
- Implementing custom ILM storage management policies.
- In-memory storage of database objects, including big table caching, full database caching and in-memory column stores.
- Archiving inactive data inside the database while not degrading performance while limiting added storage costs.
- Introduce temporal validity into a table and perform flashback query operations using temporal validity criteria.
- Data redaction that allows data privacy policies to be dynamically enforced during queries.

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### Contents

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#### Advanced Administration: About Advanced Database Administration

- Database Feature Usage
- Server Alert Framework
- Managing The Server Alerts Using EM CC
- pDB Level Alerts

#### Advanced Administration: Globalization

- Globalization Settings
- Managing NLS Settings
- Date & Time Localization
- Linguistic Sorting & Matching
- Linguistic Indexes
- About Locale Builder

#### Advanced Administration: Database Connections & Shared Servers

- Connection & Session Options
- Shared Servers Architecture
- Comparing Shared Servers & Dedicated Servers
- Configure Shared Servers
- Use Shared Servers
- Monitor Shared Servers

#### Advanced Security: Database Security Threats

- Potential Threats
- Potential Attackers
- The Threat Matrix
- Database Security Checklist

#### Advanced Security: Encryption Concepts

- About Encryption
- Data-At-Rest Encryption
- Data-In-Transit Encryption
- Data-En-Route Encryption
- Encryption Limitations
- Encryption Algorithms & Potential Weaknesses
- Managing Encryption Keys

#### Advanced Security: TDE Keystore Management

- About Transparent Data Encryption
- The SYSKM Administrator
- TDE Encryption Algorithms
- Understanding How Column Encryption Works
- Understanding How Tablespace Encryption Works
- Is TDE Unbreakable?
- Managing TDE
- Managing The Keystore
- Managing A Wallet Keystore Using SQL
- Managing A Wallet Keystore Using EM CC
- Managing A Wallet Keystore Using OWM
- Advanced Management Options
- Keystore Backups
- Migrate To HSM Keystore
- Wallet Open Options
- Regenerate Master Encryption Key

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### Advanced Security: TDE Data Encryption

- Implement Tablespace Encryption
- Implement Column Encryption
- Assessing Encryption Usage

### Advanced Security: Oracle Net Services Encryption & Security

- Network-Launched Attacks
- Limiting Database Attacks
- Preventing Denial-of-service Attacks
- Avoiding Disclosure Of Vulnerabilities
- Oracle Net Services User Notifications
- Oracle Net Native Encryption
- Implementation With Oracle Net Manager
- Implementation With sqlnet.ora

### Advanced Storage: Space Management

- Space Management Best Practices
- Segment Storage Specifications
- Estimate & Track Space Usage
- Resumable Space Allocation
- Enable A Resumable Session
- Detect A Suspended Session
- Resuming A Session
- Using DBMS\_RESUMABLE()
- Deferred Segment Creation

### Advanced Storage: The Segment Advisor

- About The Segment Advisor
- Using The SHRINK SPACE Option
- Segment Advisor Within EM CC
- The Automatic Segment Advisor

- Programmatic Segment Advisor

### Advanced Compression

- About Compression
- Table Compression
- Basic Table Compression
- Advanced Row Compression
- Additional Table Compression Considerations
- Index Compression
- Key Compression
- Advanced Index Compression
- Hybrid Columnar Compression
- Compression Analysis
- Using SQL Metadata Queries
- Using DBMS\_COMPRESSION()
- Using EM CC

### Heat Map Tracking & Automatic Data Optimization (ADO)

- About ILM
- The Oracle Database & ILM Support
- Heat Map Tracking
- Automatic Data Optimization (ADO)
- Adding ADO Policies Using SQL
- Managing ADO Policies Using SQL
- Managing ADO Policy Evaluation
- Managing ADO Policies Using EM CC

### In-Memory Storage

- About Traditional Table Caching
- Big Table Caching
- Full Database Caching
- In-Memory Column Store
- IMCS Internals

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- Configuring The IMCS
- Assigning Objects To The IMCS
- Assigning Columns To The IMCS
- Monitoring IMCS Using EM CC

### In-Database Archiving

- About In-Database Archiving
- In-Database Archival Tables
- In-Database Archiving Of Rows
- Temporal Validity

### Data Redaction

- About Data Redaction
- The Redaction Functions
- Using Function Type `dbms_redact.random`
- Using Function Type `dbms_redact.partial`
- Function Type `dbms_redact.partial` Shortcuts
- Using Function Type `dbms_redact.regexp`
- Function Type `dbms_redact.regexp` Shortcuts
- Defining Redaction Policies
- Managing Redaction Policies
- Customizing Full Redaction
- Viewing Redaction Metadata
- Using EM Cloud Control
- Inference Attacks

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