

Oracle Database 12c: Administration Workshop

Course Summary

Description

The overall objective of this course is threefold. First, this course instructs one in many of the day-to-day administration tasks required of an Oracle database administrator. Second, it is one of the course modules that assist in preparation for certification as an Oracle Certified Associated (OCA) database administrator. Finally, it introduces one to many of the administration sub-specialties that one might next pursue. It is increasingly rare for a single database administrator to fulfill all the required responsibilities necessary for management of an enterprise-scale Oracle database installation. Therefore, one may eventually specialize into backup and recovery strategies, database performance tuning, security administration and the like. So this course introduces the many powerful capabilities of the Oracle database and references the applicable courses within the Sideris Oracle database administration series that one might next consult.

Whenever appropriate this course demonstrates how an Oracle database installation integrates with its host environment, most commonly a Linux, Unix or MS Windows operating system platform. Extensive examples, workshop exercises and solutions are provided using the SQL command-line, the Enterprise Manager Database Express and the Enterprise Manager Cloud Control interfaces.

Topics

- Introduction: Managing The Database Instance
- Introduction: Database Architecture Review
- Introduction: Starting & Stopping Database Services
- Introduction: Oracle Network Environment
- Storage: Tablespace Management
- Storage: Advanced Tablespace Management
- Storage: Data Files & Temp Files Management
- Storage: Undo Data & Undo Tablespaces
- Security & Schemas: Security Overview & Database Privileges
- Security & Schemas: User Security
- Security & Schemas: Database Auditing
- Security & Schemas: Export & Import
- Performance & Availability: Managing Performance & SQL Tuning
- Performance & Availability: Data Concurrency
- Performance & Availability: Backup & Recovery Concepts

Audience

The target audience for this textbook is all Oracle professionals. Among the specific groups for whom this textbook will be helpful are:

- Database administrators
- Application designers and developers
- Web server administrators
- System administrators
- Implementation specialists
- Data center support engineers
- Chief Information Officers (CIO) and other information technology (IT) management professionals

Prerequisites

These are mandatory prerequisites for this textbook:

- Oracle Database 12c: SQL Fundamentals (Levels I & II)
- Oracle Database 12c: Install & Upgrade Workshop
- Oracle Database 12c: Architecture & Internals

Duration

Five days

Oracle Database 12c: Administration Workshop

Course Outline

I. Introduction: Managing The Database Instance

- A. The Database Management Tools
- B. EM Database Express
- C. EM Cloud Control
- D. SQL Developer
- E. Database Administration Duties

II. Introduction: Database Architecture Review

- A. Database Instance Configurations
- B. Memory Structures
- C. Process Structures
- D. Storage Architecture

III. Introduction: Starting & Stopping Database Services

- A. Start & Stop The Database Listener
- B. About Database Startup/Shutdown
- C. Sysoper
- D. Sysdba
- E. Database State & Stages
- F. Startup With EM Cloud Control
- G. Startup With SQL*Plus
- H. Shutdown With EM Cloud Control
- I. Shutdown With SQL*Plus
- J. Using Ms Windows Services

IV. Introduction: Oracle Network Environment

- A. Oracle Net Services Architecture
- B. Oracle Net Configuration Assistant
- C. Oracle Net Manager
- D. Using EM Cloud Control
- E. Advanced Network Compression
- F. Troubleshooting Network Problems
- G.
- H. Introduction: Diagnostics & Oracle Support
- I. About Database Diagnostics
- J. Fault Diagnosability Infrastructure
- K. Database Instance Health Snapshot
- L. The Support Workbench
- M. Proactive Database Health Checks
- N. Package Diagnostic Data
- O. Working With The Knowledge Base

V. Storage: Tablespace Management

- A. Starter Tablespaces
- B. Create Tablespace With EM Cc
- C. Create Tablespace With SQL
- D. Manage Tablespaces With EM Cc
- E. Manage Tablespaces With EM De
- F. Manage Tablespaces With SQL
- G. Drop Tablespace

- H. Alter Tablespace

VI. Storage: Advanced Tablespace Management

- A. Managing Temporary Tablespaces
- B. Temp Tablespace Groups With EM
- C. Temp Tablespace Groups With SQL
- D. Default Permanent Tablespaces
- E. Bigfile Tablespaces
- F. Managing The Sysaux Tablespace

VII. Storage: Data Files & Temp Files Management

- A. Manage Data Files With EM
- B. Access Metadata With SQL
- C. Manage Data Files With SQL
- D. Manage Temp Files
- E. Oracle-Managed Files (OMG)

VIII. Storage: Undo Data & Undo Tablespaces

- A. About Undo Space Management
- B. Configure Undo Management
- C. Guarantee Undo Retention
- D. Monitor Undo Space With SQL
- E. Use The EM Undo Advisor

IX. Security & Schemas: Security Overview & Database Privileges

- A. Database Security Principles
- B. Database System Privileges
- C. Database Object Privileges
- D. Super Administrator Roles
- E. Privilege Analysis

X. Security & Schemas: User Security

- A. Create & Manage User Accounts
- B. Manage Users With EM
- C. Manage Users With SQL
- D. Create User
- E. Alter User
- F. Drop User
- G. Grant & Revoke Privileges
- H. Resource Limits Via Profiles
- I. Alter Profile
- J. Drop Profile
- K. Password Management Via Profiles
- L. Role-Based Security Management
- M. Alter User...Default Role
- N. Set Role
- O. Delegating Privilege Authorization
- P. With Admin Option & System Privileges
- Q. With Grant Option & Object Privileges
- R. Principle Of Least Privilege Checklist

Due to the nature of this material, this document refers to numerous hardware and software products by their trade names. References to other companies and their products are for informational purposes only, and all trademarks are the properties of their respective companies. It is not the intent of ProTech Professional Technical Services, Inc. to use any of these names generically

Oracle Database 12c: Administration Workshop

Course Outline (cont'd)

XI. Security & Schemas: Database Auditing

- A. Auditing Database Activity
- B. Traditional Auditing
- C. Unified Auditing
- D. Create Audit Policy
- E. Loader Concepts
- F. Loader From The Command Line
- G. Control File Options
- H. Load Methods
- I. Loader Express Mode
- J. Loader From EM

XII. Security & Schemas: Export & Import

- A. Manage Directory Objects
- B. The Data Pump Architecture
- C. Data Pump Export
- D. Data Pump Import
- E. Data Pump Dictionary Views
- F. Using The EM Cc Interface

XIII. Performance & Availability: Managing Performance & SQL Tuning

- A. Management Advisory Framework
- B. Performance Monitoring & AWR
- C. The SQL Tuning Advisor
- D. Monitoring Exceptions With Metrics

XIV. Performance & Availability: Data Concurrency

- A. About System & User Locks
- B. Monitor & Manage User Locks
- C. Monitor Locks With Data Dictionary
- D. Manage Locks With EM

XV. Performance & Availability: Backup & Recovery Concepts

- A. Backup & Recovery Structures
- B. Managing Redo Data
- C. Configuring For Recoverability
- D. Instance Recovery
- E. Recoverability Checklist