

Oracle 18c Database Administration I Installation & Management

Course Summary

Description

This course provides an educational starting point for administration of the Oracle database. The course begins with an in-depth discussion of the database architecture, then installing the Oracle software and creating an Oracle database are covered.

The Oracle instance, background processes, the SGA and memory structures are explored. As well as administering the initialization parameter file and the procedures for database startup and shutdown. Various models of data concurrency and consistency and alternative isolation levels are explained along with their uses.

A large portion of the class covers common administration tasks such as managing the use of disk space through data files, tablespaces, extents, blocks and rows, the UNDO tablespace and the on-line redo log.

The effective use of indexes is presented and how Oracle uses indexes to improve query performance.

Since so much access to Oracle's features is based upon it, a comprehensive overview of the PL/SQL language is conducted, including stored procedures and database triggers.

All aspects of database user creation, maintenance and management are provided. Also including database security and controlling user access to database objects and resources

There is a review of Oracle's approach to the "self-tuning database" and the SQL Access and SQL Tuning advisors.

The Oracle data utilities SQL*Loader, import data pump and Export data pump are described.

Finally, an overview of backup and recovery concepts is given along with simple backup and recovery procedures.

The content of this course is applicable to Oracle version 18c.

Topics

- Oracle Architecture
- Data Dictionary
- Installing Oracle 18c Enterprise Edition
- Database Creation
- Database Startup and Shutdown
- Managing the Initialization Parameter file
- Managing the System Global Area (SGA)
- Concurrency and Consistency
- Managing Database Storage
- Managing UNDO
- PL/SQL Overview
- Managing Database Users
- Controlling User Access
- Managing Database Security
- Creating Tables
- Maintaining Tables
- Creating Constraints
- Maintaining Constraints
- Effective Indexing
- Creating Other Schema Objects
- Working with Statistics
- Self-managing Database
- Loading and Moving Data
- Backup and Recovery Concepts

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Course Summary (cont.)

Audience

This course is designed for:

- Oracle developers and novice DBAs
- Oracle developers and DBAs wishing to 'back fill' gaps in their expertise
- Oracle APEX, Forms and Reports developers
- Technical managers needing Oracle expertise for project administration

Prerequisite

- Skill with GUI interfaces
- Data processing background
- An understanding of SQL is required to succeed in this class

Duration

Five Days

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ORA-600-18

Course Outline

- I. Oracle Architecture**
 - A. The instance vs. the database
 - B. The System Global Area (SGA)
 - C. The critical background processes
- II. Data Dictionary**
 - A. Dictionary table scope
 - B. Dynamic performance views (V\$ views)
- III. Installing Oracle 18c Enterprise Edition**
 - A. What the installer does
 - B. Preparing for an installation
 - C. Running Oracle Universal Installer (OUI)
- IV. Database Creation**
 - A. Database creation options
 - B. Database Configuration Assistant (DBCA) capabilities
 - C. Database creation steps
- V. Database Startup and Shutdown**
 - A. What happens at startup
 - B. The different startup modes
 - C. What happens at shutdown
 - D. The different shutdown options
- VI. Managing the Initialization Parameter file**
 - A. How the initialization parameter file ('init.ora') is used
 - B. The differences between PFILE and SPFILE
 - C. Managing PFILES and SPFILES
- VII. Managing the System Global Area (SGA)**
 - A. Major components of the SGA
 - B. Automatic memory management
 - C. Some critical SGA related parameters
- VIII. Concurrency and Consistency**
 - A. What these two words mean
 - B. How Oracle manages concurrency and consistency
 - C. What part UNDO plays
 - D. Alternative isolation levels
- IX. Managing Database Storage**
 - A. The parts of the "database"
 - B. Managing datafiles
 - C. Managing online redo logs
 - D. Managing control files
- X. Managing UNDO**
 - A. The uses of UNDO data
 - B. The UNDO tablespace
- XI. PL/SQL Overview**
 - A. Creating PL/SQL anonymous blocks
 - B. Creating PL/SQL stored procedures
 - C. Creating PL/SQL triggers
- XII. Managing Database Users**
 - A. Creating database users
 - B. Options at user creation
 - C. Managing user space allocations
- XIII. Controlling User Access**
 - A. Working with object and system permissions
 - B. Using ROLES
 - C. Controlling resource consumption with PROFILES
- XIV. Managing Database Security**
 - A. User password management
 - B. Ensuring password complexity
- XV. Creating Tables**
 - A. Oracle datatypes
 - B. Creating tables with CREATE TABLE
- XVI. Maintaining Tables**
 - A. What table characteristics can be changed
 - B. Modifying table structure with ALTER TABLE
 - C. Eliminating tables with DROP TABLE

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Course Outline (cont.)

- XVII. *Creating Constraints***
 - A. The kinds of constraints
 - B. How referential integrity is provided
 - C. Inline vs. out-of-line syntax
- XVIII. *Maintaining Constraints***
 - A. How can constraints be changed
 - B. Deferring constraint enforcement
 - C. Enabling and disabling constraints
- XIX. *Effective Indexing***
 - A. Creating B*-Tree indexes
 - B. Utilizing "super" indexes
 - C. Monitoring index usage
- XX. *Creating Other Schema Objects***
 - A. Creating sequences
 - B. Creating views
 - C. Creating synonyms
- XXI. *Working with Statistics***
 - A. What kind of statistics are collected?
 - B. How Oracle uses statistics
 - C. Operating on statistics with DBMS_STATS
- XXII. *Self-managing Database***
 - A. Understanding Oracle's "Intelligent Infrastructure"
 - B. The metrics being saved in Automated Workload Repository (AWR)
 - C. What the Automated Database Diagnostic Monitor (ADDM) does
 - D. Other self-managing and self-tuning activities
- XXIII. *Loading and Moving Data***
 - A. Loading data with SQL Loader
 - B. Creating data exports with Export Data Pump (expdp)
 - C. Manipulating data exports with Import Data Pump (impdp)
- XXIV. *Backup and Recovery Concepts***
 - A. Backup and recovery fundamentals
 - B. Types of backups
 - C. Performing cold backups