

Course 281: Oracle Database Administration, Hands-On (5 days)

Course Description...

This course is your first step towards success as an Oracle professional, designed to give you a firm foundation in basic database administration. In this class, you'll learn how to create and maintain an Oracle database. You will gain an understanding of the Oracle database architecture and how its components work and interact with one another. You will also learn how to properly manage the various structures in an effective and efficient manner including performance monitoring, database security, user management, and basic backup/recovery techniques. The lesson topics are reinforced with structured hands-on practices. The course is based on and will be using Oracle Database 11g.

Learning Objectives...

- Building, starting up and shutting down the database
- Creating and maintaining tablespaces
- Configuring UNDO tablespaces and retention periods
- Administering partitioned objects for maintenance and performance
- Safeguarding using backup and restore techniques
- Retrieving lost data from hardware and software failure
- Managing user resources and privileges
- Redefining, reorganizing and shrinking tables online
- Recovering from user error with flashback operations

Who should attend...

Database administrators and others involved in the management of Oracle databases.

Prerequisites...

Course 267, "Introduction to Oracle 11g" or equivalent SQL knowledge is assumed.

See next page for a detailed course outline...



Course Outline...

Introduction to Oracle Database 11g Administration

- Your responsibilities as an Oracle 11g DBA
- Configuring the instance and database
- Maintaining security
- Balancing user requirements and resources
- Ensuring database availability

The Oracle 11g Architecture

- Processing transactions with the server
- Identifying types of Oracle 11g processes and memory structures
- Determining database file structure
- Archiving redo log information
- Sizing the Result Cache for optimizing repeated queries

Building an Oracle 11g Database

- Creating the database
- Setting the initialization parameters
- Simplifying memory allocation with memory targets
- Establishing network connectivity
- Converting from text-based to server parameter files
- Configuring control files and redo log files
- Starting and stopping the database
- Mounting and opening the database with SQL*Plus
- Authenticating connections having SYSDBA privilege
- Closing the database and shutting down the instance

Automating Database Management

- The Oracle Enterprise Manager architecture
- Navigating the graphical interface
- Comparing command-line and graphical techniques
- Administering with Database Control
- Equipping Database Control to manage additional databases
- Setting thresholds and generating alerts
- Verifying changes in the data dictionary
- Performing privilege management

Performing Flashback Operations

- Resetting data to recent points in time with flashback
- Tracking changes to data values with row history
- Obtaining transaction history with Flashback Transaction
- Performing efficient recovery of data with Flashback Table
- Retrieving dropped tables and dependent objects from the recycle bin

Securing the Database

- Establishing user accounts
- Authenticating users with sophisticated password checking
- Allocating space quotas for user schemas
- Limiting resource usage through profiles
- Enforcing security
- Granting and revoking system and object privileges
- Simplifying privilege management with roles
- Preventing changes to read-only tables



Controlling Database Storage

- Defining logical and physical structures
- Creating, altering, and dropping tablespaces
- Managing space for rollback and read consistency
- Configuring UNDO tablespaces
- Monitoring expansion of rollback segments
- Swapping to an alternative UNDO tablespace
- Handling sort data efficiently with temporary tablespaces
- Comparing traditionally managed and Oracle-managed files
- Sizing database objects by defining extents and block occupancy
- Eliminating row migration with PCTFREE and Data Pump
- Shrinking tables and indexes online to regain space

Partitioning to Support Administration and Availability

- Creating table partitions and subpartitions
- Selecting partitioning methods: range, list, hash, interval
- Partitioning tables based on virtual columns
- Setting up automatic partition allocation
- Referencing the partitioning method in child tables
- Administering partitions with merge, split, add and drop
- Maintaining index partitions
- Maximizing performance with local and global indexes
- Monitoring index partition usage
- Rebuilding unusable indexes

Backing Up and Recovering the Database

- Safeguarding the database
- Role of the redo log and control file
- Ensuring recovery using archiving
- Protecting and tracing the control file
- Selecting a backup strategy
- Implementing hot and cold backups
- Partial online and offline backups
- Restoring tables with Data Pump
- Performing recovery of the database or individual tablespaces

Fundamental Tuning Concepts

- Sizing the buffer cache and shared pool
- Balancing disk I/O and memory allocation
- Index storage considerations

Please contact your ROI representative to discuss course tailoring!!!