

A Relational Database Management System (RDBMS) is a software system that allows you to create and manage a Relational Database. Minimum requirements for such a system are defined by both ANSI and ISO. Database administration involves installation and management of a database, which includes security, performance, backup/recovery, and reliability. Oracle Database 10g is designed to automate many of the functions previously managed by an Oracle Database Administrator manually.

This class will introduce the experienced Oracle DBA to the new features contained in Oracle Database 10g. As students are introduced to the various new features, labs will reinforce the material presented in this course. Once this course is completed, the student will have gained the foundational knowledge to begin to administer Oracle10g databases.

Course Objectives:

- Migrate or upgrade to Oracle 10g.
- Implement the new features in Oracle 10g.
- Manage Oracle 10g.
- Monitor Oracle 10g.
- Improve performance with Oracle 10g.
- Improve database availability with Oracle 10g.

Audience: Database administrators, application developers, and system administrators.

Prerequisites: *Oracle9i DBA Fundamentals I*, or equivalent experience.

Number of Days: 5 days

<p>1. Course Introduction Course Objectives Overview Suggested References</p> <p>2. Migrating to Oracle 10g The Different Editions of Oracle Database 10g Oracle Database Installation New Features — CD Contents The SYSAUX Tablespace 10g Upgrade Paths and Methods Database Upgrade Assistant (DBUA) Manual Upgrade Preparing to Upgrade to Oracle 10g Rolling Back to a Previous Version Steps to Roll Back</p> <p>3. Database Extraction and Loading New Features</p>	<p>Cross-Platform Transportable Tablespaces Transporting a Tablespace Between Platforms Converting the Byte Format New Oracle Database External Table Features External Table Creation in Parallel The Oracle Data Pump Architecture Configuring the Database to Use Data Pump Using the expdp and impdp Tools Import and Export Via the Oracle Data Pump Using Interactive Mode</p>
<p>4. Tuning and Management</p>	

- Basic Initialization Parameters
- Automatic Shared Memory Management
- Configuring Automatic Shared Memory
- FLUSHING the Buffer Cache
- New 10.2 Tuning and Management Features
- Automatic Statistics Collection
- Automatic Undo Management and Tuning
- Guaranteed Undo Retention
- Automatic Checkpoint Tuning
- Using the DBMS_SQLTUNE Package
- SQL Trace and DBMS_MONITOR
- 5. Oracle 10g Advisor Framework and Advisors**
 - The Advisor Framework
 - Automatic Workload Repository
 - Managing AWR
 - Automatic Database Diagnostic Monitor
 - SQL Tuning Advisor
 - SQL Access Advisor
 - Segment Advisor
 - Undo Advisor
- 6. OEM: The Database Control**
 - Introducing Oracle Enterprise Manager
 - Oracle Database Control Home Page
 - Starting and Using Database Control
 - Database Control Performance Page
 - Administration and Maintenance Home Pages
 - Determine Which Database Features are in Use
 - MMON
 - Configuring Server-Generated and Threshold-Generated Alerts
 - Automating Routine Administrative Tasks
- 7. Server Management New Features**
 - Default User Tablespaces
 - Rename Tablespaces
 - Temporary Tablespace Groups
 - Bigfile Tablespaces
 - Dropping Empty Datafiles
 - Drop Database Command
 - Shared Server Changes
- 8. New Segment Features**
 - New Table Monitoring Behaviors
 - Hash-Partitioned Global Indexes
 - Skipping Unusable Indexes
 - New Partitioned Index Management Features
 - Sorted Hash Clusters
 - Shrinking Segments Online
 - Estimating Segment Resource Requirements
 - Materialized Views
- 9. New Security Features**
 - Fine-Grained Auditing
 - Virtual Private Database
 - Column-Level VPD
 - Column-Level VPD Example
 - The DBMS_CRYPTO Package
 - Transparent Data Encryption
- 10. Availability and Recovery — RMAN**
 - Introducing the Flash Recovery Area
 - Configuring and Managing the Flash Recovery Area
 - RMAN Flash Backup and Recovery
 - RMAN Backup Compression
 - DROP DATABASE and UNREGISTER DATABASE
 - CATALOG and UNCATALOG Commands
 - Other RMAN New Features
- 11. Availability and Recovery — Flashback Database**
 - Incremental Backup Changes
 - Flashback Database
 - FLASHBACK TABLE
 - Flashback Drop
 - Flashback Versions
 - Flashback Transactions
 - Simplified Recovery Through Resetlogs
- 12. The Scheduler**
 - Scheduler — Introduction
 - Architecture of the Scheduler

- Job Class and Windows
- Privileges Needed for Scheduler Components
- Creating Jobs, Programs, and Schedules
- Administering Jobs, Programs, and Schedules
- Scheduler-Related Data Dictionary Views
- Repeat Intervals for a Job
- Event-based Scheduling
- Customized Calendars
- Job Chain Concepts
- Managing Job Chains
- 13. Automatic Storage Management**
 - ASM Overview
 - Administering ASM Disk Groups
 - Creating A Disk Group
 - Altering ASM Diskgroups
 - Rebalancing Disksgroups
 - POWER Clause
 - ASM Templates, Directories, and Aliases
 - Administration of ASM Directories
 - ASM Failure Groups
 - Creating and Managing an ASM Instance
 - ASM Initialization Parameters
 - Migrating to ASM — RMAN
 - Steps To Disk-Based Migration of a Database to ASM
 - Steps To Migrating a Database to ASM Using Tape Backups
 - 10g Release 2 ASM Functionality
 - ASM-Related Data Dictionary Views
- 14. New and Updated SQL Features**
 - Partitioned Outer Joins
 - New CONNECT BY Functionality
 - Asynchronous commit
 - The Model Clause (in Narrow Calculations)
 - MERGE Command
 - Aggregates in the Returning Clause
 - Table Function
 - Regular Expressions
 - REGEXP_LIKE and REGEXP_INSTR
- REGEXP_SUBSTR and REGEXP_REPLACE
- More on Regular Expressions
- The SAMPLE Clause
- Case- and Accent-Insensitive Queries
- 15. SQL*Plus New Features**
 - Improvements to DESCRIBE and SPOOL
 - Changes to SQL*Plus Profile Files
 - SQL*Plus Variable Substitution
 - Other Enhancements in SQL*Plus
- 16. Application-Related New Features**
 - User-Specified Quote Characters
 - LOB-Related New Features and Enhancements
 - DBMS_PROFILER
 - The UTL_COMPRESS Package
 - The UTL_MAIL Package
 - The DBMS_FILE_TRANSFER Package
 - Other New and Modified Oracle10g Supplied Packages
- 17. PL/SQL New Features**
 - Natively-Compiled PL/SQL Improvements
 - Compile-Time Warnings
 - FORALL — Support for Non-Consecutive Indexes in Collections
 - Nested Table Improvements
 - Improved Overloading With Numeric Types
 - Overloading Guidelines and Restrictions
 - Other PL/SQL New Features
- 18. Networking New Features**
 - New Connect String Format
 - Buffer Space I/O Configurations

Tuning SEND_BUF_SIZE and
 RECV_BUF_SIZE Values

New Protocol Support

SDP Protocol Pre-Installation
 Requirements

Connection Manager

Configuring Connection Manager

19. Other Oracle 10g New Features

Oracle Net Instant Client

Transaction Monitoring

End-to-End Application Tracing

Log Miner

Resumable Space Management

RBO Obsolete in Oracle Database 10g

Database Resource Manager —
 Consumer Groups

Database Resource Manager — Setting
 Idle Timeouts

Online Limit Changes

**20. Appendix A – Real Application
 Clusters Enhancements**

Integrated Clusterware Utility

CRS Installation

Oracle Cluster Registry and Oracle
 Cluster File System

Automatic Workload Management

Workload Management

Single System Image Management

Fast Connection Failover

Zero Downtime Patching and Improved
 Diagnostics

**21. Appendix B – Oracle 10g New Data
 Dictionary Views**

New Data Dictionary Views

New Dynamic Performance Views

New Columns in Static Data Dictionary
 Tables

New Columns in Dynamic Performance
 Views

**22. Appendix C – Oracle 10g New
 Supplied Packages**