

Oracle 11g New Features for Developers

Length: 3 Days

Audience: Programmers, Analysts, Managers, and Database Designers

Prerequisites: Experience using the Oracle DBMS including knowledge of SQL and PL/SQL

Overview: This course presents an overview of new features and enhancements introduced to the Oracle DBMS in Oracle 11g. Attendees should already be familiar with the general features available in earlier releases of Oracle, including features introduced in Oracle10g. The examination of this release includes reviewing the benefits and use of the new features for improving scalability and performance, strengthening security, extracting and manipulating data, and several other areas that concern database developers. The course addresses issues related to the development of applications as well as environmental issues which affect the operation and performance of database applications.

By attending this course, students will learn how to plan the use of Oracle Database 11g Release 1 and Release 2 more effectively. Upon successful completion, students will be able to:

- Explain security features in Oracle 11g, including data encryption
- Explain the use of the result cache for SQL and PL/SQL
- Explain how cursor sharing operates in Oracle 11g
- Develop a strategy for testing and upgrading applications
- Explain partitioning options available in Oracle 11g
- Use Flashback Transaction Back-Out to perform logical data recovery
- Use the Oracle 11g new SQL and PL/SQL features
- Explain the enhancements to XML support
- Explain the enhancements to Data Pump utilities and external tables

Topics Discussed Include:

- Introducing Oracle 11g
 - Product History
 - Oracle11g Architecture
 - Oracle11g Database Editions
 - Scope of Changes
 - Grid Computing
- Security Features
 - Database Security
 - Password Case Sensitivity
 - Built-in User Profile
 - Default Auditing
 - Built-in Password Complexity Checker
 - OLAP Security Enhancements

- New Privileges
- Transparent Data Encryption
- Tablespace-Level Encryption
- Database Architecture and Instance Performance
 - Result Cache Concepts
 - Enabling Result-Caching
 - Cross-Session PL/SQL Function Result Cache
 - Enabling Result-Caching for a Function
 - Restrictions on Using the Result Cache
 - Result Caches in Oracle RAC Environment
 - The Result Cache and Shared Pool Size
 - Peeking of User-Defined Bind Variables
 - Bind-Aware Cursor Matching
 - Adaptive Cursor Sharing
- SQL Plan Management
 - Dealing with Uncertainty
 - Plan Stability and Stored Outlines
 - Proactive versus Reactive Tuning
 - Managing SQL Plan Baselines
 - SQL Management Base
- Real Application Testing
 - Real Application Testing Overview
 - Database Replay Overview
 - Capturing a Database Workload
 - Preparing to Replay a Database Workload
 - Resolving References to External Systems
 - Specifying Replay Options
 - Replaying a Database Workload Using Enterprise Manager
 - Viewing a Completed Workload Replay
 - DBMS_WORKLOAD_REPLAY Package
 - DBMS_WORKLOAD_CAPTURE Package
 - SQL Performance Analyzer Overview
 - Performance Analyzer Workflow
 - Working with SQL Tuning Sets
 - Using SQL Performance Analyzer
- Automatic SQL Tuning
 - Automated Maintenance Tasks
 - Predefined Maintenance Tasks
 - Maintenance Windows
 - Predefined Maintenance Windows
 - Autotask Database Dictionary Views
 - Gathering Optimizer Statistics
 - Enabling Automatic Statistics Collection
- Data Warehousing and Storage Enhancements
 - Partitioning Overview

- Partition-Wise Joins
- Evolution of Partitioning
- Range Partitioning
- Hash Partitioning
- List Partitioning
- Partitioning in Oracle 11g
- Reference Partitioning
- Interval Partitioning
- Extended Composite Partitioning
- Virtual Columns
- Virtual Column Partitioning
- System Partitioning
- Partition Advisor
- Table Compression
- Using Table Compression
- Using Table Compression with Partitioned Tables
- Table Deferred Segment Creation
- Extended Statistics
- Gathering Statistics on Column Groups
- Expression Statistics
- Pivoting and un-pivoting operations
- Cross-tab queries
- Pivot and un-pivot with multiple columns and multiple aggregates
- Wildcards and aliases with pivoting operations
- Using Flashback Features
 - Overview of Flashback Technology
 - Logical Flashback Features
 - Database Administration Features
 - Flashback Transaction
 - Preparing for Flashback Transaction Backout
 - Using Flashback Data Archive
 - Creating a Flashback Data Archive
 - Altering a Flashback Data Archive
 - Dropping a Flashback Data Archive
 - Enabling and Disabling Flashback Data Archive
 - Dictionary Views for Flashback Data Archives
 - Using Flashback Data Archive
 - Flashback Data Archive Notes
- Enhancements to Utilities
 - Changes to Utilities
 - Original Export Utility
 - Data Pump Export/Import Enhancements
 - External Table Enhancements
 - SQL*Plus Error Logging
 - SET ERRORLOGGING Statement

- Creating a User Defined Error Log Table
- Viewing the Error Logging Table
- Site Profile Script
- Additional SQL*Plus Enhancements
- Enhancements to Oracle Scheduler
- Appendix: Data Pump Export Parameters
- Appendix: Data Pump Import Parameters
- Oracle SecureFiles
 - Oracle SecureFiles Overview
 - DB_SECUREFILE Parameter
 - LOB Storage Syntax
 - Usage Notes for Compression
 - Usage Notes for Deduplication
 - Usage Notes for Encryption
- PL/SQL Enhancements
 - Compiler Changes
 - Data Type Changes
 - Subprogram In-Lining
 - CONTINUE Statement
 - Sequences in PL/SQL Expressions
 - Named and Mixed Notation Calls to Functions
 - PL/SQL Hierarchical Profiler
- Trigger Enhancements
 - Compound Trigger Type
 - Compound Trigger Structure
 - Compound Trigger Sections
 - Triggering Statements of Compound Triggers
 - Create Disabled Triggers
 - Use the ENABLE Clause with a Trigger
 - Control Trigger Order with FOLLOWS and PRECEDES clauses
- SQL Enhancements
 - Subquery Factoring Recursive SQL
 - CREATE TABLE and ALTER TABLE enhancements
 - Edition-Based Redefinition
 - Editioning View
 - Crossedition Triggers
 - Optimizer Hints
- Performance Enhancements
 - DDL Lock Timeout
 - Invisible Indexes
 - Multicolumn Statistics
 - Migrating stored outlines to SQL plan baselines
 - In-Memory Parallel Execution
- Miscellaneous New Features
 - Online Redefinition Enhancements

- **Finer Grained Dependencies**
- **Regular Expression Function Enhancements**
- **Binary XML Support for Oracle XML Database**
- **Indexing XMLType Data**
- **XML Schema Enhancements**
- **XML Functions (XMLCAST, XMLEXISTS, XMLDIFF, and XMLPATCH)**