ORACLE 11g DATABASE ADMINISTRATION- WORKSHOP I

Course is designed to: Prepare the candidates for the changing trends in Technology and be able to face the real world situations, using our company's hands on experience in maintaining the databases. Bringing the onsite practical experiences to the classrooms.

Prerequisite: ORACLE SQL & PL/SQL

Course Objectives
Install Oracle Database 11g and configure a database
Manage the Oracle instance
Manage the Database storage structures
Create and administer user accounts
Perform backup and recovery of a database
Monitor, troubleshoot, and maintain a database
Configure Oracle Net services
Move data between databases and files

COURSE TOPICS

Introduction (Database Architecture)
>   Describe course objectives
>   Explore the Oracle 11g database architecture

Installing Oracle Database 11g Software
>   Explain core DBA tasks and tools
>   Plan an Oracle installation
>   Identify system requirements
>   Use optimal flexible architecture
>   Install software with the Oracle Universal Installer(OUI)

Create an Oracle Database
>   Create a database with the Database Configuration Assistant (DBCA)
>   Create a database design template with the DBCA
>   Generate database creation scripts with the DBCA

Managing the Oracle Instance
>   Start and stop the Oracle database and components
>   Use Enterprise Manager (EM)
>   Access a database with SQL*Plus
>   Modify database initialization parameters
>   Understand the stages of database startup
>   View the Alert log

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Use the Data Dictionary

Managing Database Storage Structures

Describe table data storage (in blocks)
Define the purpose of tablespaces and data files
Understand and utilize Oracle Managed Files (OMF)
Create and manage tablespaces
Obtain tablespace information
Describe the main concepts and functionality of Automatic Storage Management (ASM)

Administering User Security

Create and manage database user accounts
Authenticate users
Assign default storage areas (tablespaces)
Grant and revoke privileges
Create and manage roles
Create and manage profiles
Implement standard password security features
Control resource usage by users

Managing Schema Objects

Define schema objects and data types
Create and modify tables
Define constraints
View the columns and contents of a table
Create indexes, views and sequences
Explain the use of temporary tables
Use the Data Dictionary

Managing Data and Concurrency

Manage data through SQL
Identify and administer PL/SQL Objects (PL/SQL is a Pre Requisite)
Describe triggers and triggering events (PL/SQL is a Pre Requisite)
Monitor and resolve locking conflicts (SQL & PL/SQL is a Pre Requisite)

Managing Undo Data

Explain DML and undo data generation
Monitor and administer undo
Describe the difference between undo and redo data
Configure undo retention
Guarantee undo retention
Use the undo advisor

Implementing Oracle Database Security

Describe DBA responsibilities for security

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Apply the principal of least privilege
Enable standard database auditing
Specify audit options
Review audit information
Maintain the audit trail

Configuring the Oracle Network Environment

Use Enterprise Manager for configuring the Oracle network environment
Create additional listeners
Create Net Service aliases
Configure connect-time failover
Control the Oracle Net Listener
Test Oracle Net connectivity
Identify when to use shared versus dedicated servers

Backup and Recovery Concepts

Identify the types of failure that may occur in an Oracle Database
Describe ways to tune instance recovery
Identify the importance of checkpoints, redo log files, and archived log files
Configure ARCHIVELOG mode

Performing Database Backups

Create consistent database backups
Back your database up without shutting it down
Create incremental backups
Automate database backups
Monitor the flash recovery area

Performing Database Recovery

Recover from loss of a control file
Recover from loss of a redo log file
Perform complete recovery following the loss of a data file

Performing Flashback

Describe Flashback database
Restore the table content to a specific point in the past with Flashback Table
Recover from a dropped table
View the contents of the database as of any single point in time with Flashback Query
See versions of a row over time with Flashback Versions Query
View the transaction history of a row with Flashback Transaction Query

Moving Data

Describe available ways for moving data
Create and use directory objects

Explain the general architecture of Data Pump
Use Data Pump Export and Import to move data between Oracle databases
Use external tables to move data via platform-independent files

ORACLE 11g DATABASE ADMINISTRATION- WORKSHOP II

Duration: 45 Hours

Course is designed to: Prepare the candidates for the changing trends in Technology and be able to face the real world situations, using our company's hands on experience in maintaining the databases. Bringing the onsite practical experiences to the classrooms.

Prerequisite: ORACLE 11g Database Adminstration – Workshop I

Course Objectives

Use RMAN to create and manage backup sets and image copies
Recover the database to a previous point in time
Use Oracle Secure Backup to backup and recover a database
Use Oracle's Flashback technology to recover your database
Detect block corruptions and take appropriate measures to correct them
Use the various Database advisors and views to monitor and improve database performance
Control database resource usage with the Resource Manager
Simplify management tasks by using the Scheduler
Review database log files for diagnostic purposes
Customize language-dependent behavior for the database and individual sessions

Course Topics

Configuring Recovery Manager

Recovery Manager Features and Components
Using a Flash Recovery Area with RMAN
Configuring RMAN
Control File Autobackups
Retention Policies and Channel Allocation
Using Recovery Manager to connect to a target database in default NOCATALOG - mode
Displaying the current RMAN configuration settings
Altering the backup retention policy for a database

Using Recovery Manager
RMAN Command Overview
Parallelization of Backup Sets

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Image Copy
Whole Database and Incremental Backups
LIST and REPORT commands
Enable ARCHIVELOG mode for the database
Use Recovery Manager

Recovering from Non-critical Losses

Recovery of Non-Critical Files
Creating New Temporary Tablespace
Recreating Redo Log Files, Index Tablespaces, and Indexes
Read-Only Tablespace Recovery
Authentication Methods for Database Administrators
Loss of Password Authentication File
Creating a new temporary tablespace
Altering the default temporary tablespace for a database

Incomplete Recovery

Recovery Steps
Server and User Managed Recovery commands
Recovering a Control File Autobackup
Creating a New Control File
Incomplete Recovery Overview
Incomplete Recovery Best Practices
Simplified Recovery Through RESETLOGS
Point-in-time recovery using RMAN

Flashback

Flashback Database Architecture
Configuring and Monitoring Flashback Database
Backing Up the Flash Recovery Area
Using V$FLASH_RECOVERY_AREA_USAGE
Flashback Database Considerations
Using the Flashback Database RMAN interface

Dealing with Database Corruption

Block Corruption Symptoms: ORA-1578
DBVERIFY Utility and the ANALYZE command
Segment Metadata Dump and Verification
Block Media Recovery
RMAN BMR Interface

Monitoring and Managing Storage I

Database Storage Structures
Space Management Overview

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Gloedge Technologies (P) Ltd.,

847,7th Cross, 10 th Main, MICO Layout, B.T.M 2nd Stage, Bangalore-560-076,

Call: +91 80 41133336, +91 9945282834, Web : www.gloedge.com E-Mail: training@gloedge.com

Oracle-Managed Files (OMF)
Managing Resumable Space Allocation
 SYSAUX Tablespace
Monitoring table and index space usage

Monitoring and Managing Storage II
Automatic Undo Management
Redo Log Files
Table Types
Partitioned Tables
Managing index space with SQL
Configure optimal redo log file size
View "Automatic Tuning of Undo Retention"

Automatic Storage Management
ASM General Architecture and Functionalities
Dynamic Performance View Additions
Managing an ASM Instance
ASM Disk Groups
Using asmcmd Command Line
Migrating Your Database to ASM Storage
Creating an ASM instance in a separate Oracle Home
Migrating a tablespace to use ASM storage

Data Movement
Creating a Directory object and External Table
Data Pump
Transport Database
RMAN CONVERT DATABASE Command
Transport Tablespace
Create a Directory Object
Create a Temporary Table

Using Globalization Support
Globalization Support Features
Encoding Schemes
Database Character Sets and National Character Sets
Specifying Language-Dependent Behavior
Locale Variants
Using Linguistic Comparison and Sorting
Data Conversion Between Client and Server Character Sets
Determining the Default NLS Settings

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