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## Oracle Goldengate Training

**Duration: 32Hours - 4 Days (8 Hours per Day \* 4 Days)**

### Course Objectives

Design replication solutions using Oracle GoldenGate products and environments

Install Oracle GoldenGate on Linux and Windows platforms (the labs are Linux)

Prepare the source and target database environments (assumes Oracle-to-Oracle replication)

Issue GGSCI commands (batch Obey scripts and command-line interactive)

Configure, start, stop, and monitor Change Capture (Extract)

Configure, start, stop, and monitor Change Delivery (Replicat)

Configure, start, stop, and monitor Initial Load

Manage Extract trails and files using Data Pump and utilities such as logdump

Control network transmission using compression and encryption

Create parameter files

Transform data

Manage multiple Oracle GoldenGate instances

Explain Oracle GoldenGate advanced configuration options.

Describe and take advantage of the Integrated Capture feature and the recently introduced Integrated Replicat feature

to replicate complex data types and compressed data.

Configure and implement the Oracle GoldenGate Event Marker system.

Enable data transformation based on event records in the transaction logs or in the trail files.

Perform zero-downtime database migration.

Set up and manage advanced deployment models, like 3-node multi master replication configuration.

Master Oracle GoldenGate facilities to detect and resolve data conflicts in active-to-active replication implementations.



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Use a simulated Oracle RAC configuration to experiment with the Oracle GoldenGate Clusterware-aware facilities, which ensure seamless data replication in case of node failure.

## Course Topics Introduction

Discussing Required versus Suggested Knowledge  
Listing Course Objectives  
Discussing Course Non-Objectives (available as other follow-on courses)

## Technology Overview

Creating Oracle GoldenGate Topologies  
Reviewing Oracle GoldenGate Use Cases  
Assembling Building Blocks  
Listing Supported OS  
Listing Supported Databases  
Listing the Oracle GoldenGate Product Line  
Describing GUI Management Options  
Listing Non-Database Sources and Targets

## Day 1

### Oracle GoldenGate Architecture

Describing Oracle GoldenGate Process Groups  
Explaining change Capture and Delivery (with and without a data pump)  
Explaining Initial Data Load  
Contrasting Batch and Online Operation  
Explaining Oracle GoldenGate Checkpointing  
Describing Commit Sequence Numbers (CSN)  
Describing Oracle GoldenGate Files and Directories

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## Installing Oracle GoldenGate

- Listing System Requirements
- Performing Installation
- Configuring Environment Variables
- Using GGSCI
- Running Oracle GoldenGate from the OS shell.

## Configuration Overview and Preparing the Environment

- Reviewing Configuration Overview
- Configuring Manager Process
- Creating Source Definitions
- Preparing the Source Database
- Assigning Oracle Database Roles/Privileges Required
- Using DBMS\_GOLDENGATE\_AUTH Package

## Configuring Change Capture (Extract)

- Reviewing Extract Overview
- Accessing Logs on Oracle ASM
- Accessing Logs Remotely
- Configuring Extract Tasks
- Adding Extract Group
- Editing Extract Parameters
- Extracting Use of Archived Transaction Logs
- Adding Trails

## Configuring Change Delivery (Replicat)

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Reviewing Replicat Overview  
Configuring Replicat Tasks  
Configuring a Sample Environment

## **Configuring Extract Trails and Files (Data Pump)**

Reviewing Extract Trails and Files Overview  
Describing Trail Formats  
Using Logdump for Viewing Trails  
Reversing the Trail Sequence  
Configuring and Using Data Pumps

## **Performing Initial Load**

Oracle GoldenGate Methods  
Listing Database-specific Methods  
Describing Resource Limitations  
Listing Advantages of Oracle GoldenGate Methods  
Configuring File Load Methods  
Configuring Direct Load Methods  
Handling Collisions with Initial Load

## **Editing Configuration Parameters**

Editing Parameter Files  
Contrasting GLOBALS versus Process Parameters  
Configuring GLOBALS Parameters  
Configuring Manager Parameters  
Configuring Extract Parameters  
Configuring Replicat Parameters

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## Oracle GoldenGate Integrated Capture/integrated Delivery

What is Oracle GoldenGate Integrated Capture?

Why it is Needed and What Additional Replication Features it Makes Possible

How to Prepare a Database for Integrated Capture – Creation of Users, Assignments of Roles and Privileges, etc

Oracle GoldenGate Integrated Capture Deployment Modes

Integrated Replicat/Apply Architecture

Integrated Replicat: How it works

Integrated Delivery in Detail

### DDL Replication

Reviewing Data Description Language Replication Overview

Configuring and Using Options for DDL Replication

Configuring and Using String Substitution in DDL

### Bidirectional Replication

Detecting Loops

Avoiding Conflicts

Configuring and Using Conflict Detection and Resolution

Describing Identity Types Issues

### Day 3

### Filtering and Data Selection

Filtering and Data Selection

Mapping Columns Between Different Schemas

Using Built-in "@" (at) Functions

Using SQLEXEC to Interact Directly with a Database

### Additional Transformation Concepts

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Configuring and Using Macros  
Configuring and Using User Tokens  
Configuring and Using User Exits  
Configuring and Using Oracle Sequences

## Configuration Options

Configuring and Using BATCHSQL  
Configuring and Using Compression  
Configuring and Using Encryption  
Configuring and Using Event Actions

## Troubleshooting Oracle GoldenGate

Common Problems and Solutions  
Process failures  
Trail-file issues  
Synchronization problems  
Startup problems on source and target systems  
Database configuration and availability issues

## Day 4

## Conflict Detection and Resolution – Custom Techniques

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## Primary Key Generation

Custom Conflict Resolution Techniques: Quantitative Methods for Conflict Resolution and Data Convergence

Automatic Conflict Resolution Based on Time stamp or Trusted Source

Automatic Data Convergence of Numeric Values Based on Additive Value or Average Value

## **Bidirectional Replication Conjunction with USEDELTA, USEMAX, and IGNORE:**

Bi-Directional Replication

Data Conflict Types

Getting Before Image Information from Source Database

Using RESOLVECONFLICT

Handling UPDATEROWEXISTS in Conjunction with USEDELTA,

USEMAX, and IGNORE

Exceptions MAP Statement

Creating and Populating Exception and Discard Tables

## **Day 5**

### **Data Mapping, Data Selection/Filtering and Data Transformation**

TABLE (for Extract) and MAP (for Replicat) Options Which Allow for Data Selection

COLMAP and COLMATCH Options

Exploring Simple Filtering (Achieved Through the WHERE Clause) and Complex Filtering (Using the FILTER Clause)

### **Conflict Detection and Resolution – Custom Techniques**

Workload Partitioning

Geographic or Topic-Based Segmentation

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## Configuring Zero-Downtime Migration Replication

Zero-Downtime Migration Prerequisites

Zero-Downtime Migration Topology

Configuring Initial Setup and Required Steps

Configuring Primary Extract, Data pump and Replicat for Fallback  
Simulating fallback

## Oracle GoldenGate Event Marker System

Starting, Suspending, Stopping Processes, Performing a Transformation, Reporting Statistics, and Capturing Lag History Using Invoking Stored Procedures When Specific Events Occur Using SQLEXEC

Activating Tracing Following the Exceeding of a Data Threshold

Running OS Shell Commands at the Occurrence of Specific Data-Driven Events

Extracting Details Analysis of the TABLE, MAP, FILTER, WHERE and SQLEXEC Statements

Implementing Event Marker Actions on the Extraction Side and on the Delivery Side of Replication

**For Any Clarification please feel free to contact @ +91 9867328291.**

Cheers,

**Ambasa S. Ladwa**

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