

Oracle GoldenGate 12c: Advanced Configuration for Oracle

Duration: 4 Days

What you will learn

Enrolling in this Oracle GoldenGate 12c training will help you develop your installation and configuration skills. By interacting with top Oracle instructors, you'll be able to ask questions as you learn to solidify your understanding.

Learn To:

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.

Integrate the Database File System (DBFS) with Oracle GoldenGate to achieve Maximum Availability.

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.

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.

Benefits to You

Integrate your organization's disparate data across heterogeneous databases for improved decision-making. Become more efficient at configuring and implementing the more advanced features of Oracle GoldenGate used together with the Oracle RDBMS 12c.

Enable Zero-Downtime Migration

Enable Zero-Downtime Migration: this course also allows you to simulate a system upgrade. You'll develop the skills needed to survive an aborted migration, incurring zero data loss. Hone these skills by engaging in hands-on demonstrations and exercises.

Active-Active Replication and CDR

You'll also build two-way and three-way active-active replication configurations. Explore both basic and advanced conflict detection and resolution (CDR). Review basic product-provided CDR, with more advanced custom CDR techniques implemented using SQLEXEC and stored procedures.

Configure Integrated Extract Groups

Configure Integrated Extract Groups and Integrated Replicat groups: the Integrated Extract feature and the recently introduced Integrated Replicat feature are also covered in depth. You'll learn to configure integrated extract groups operating in both local and downstream deployment modes and to configure Integrated Replicat groups, which enable automatic, dependency-aware parallel apply streams for dramatically improved data delivery performance.

Learn to Utilize Advanced Features

upon completing this course, you'll be able to utilize the more advanced features of Oracle GoldenGate 12c, including: integrated capture, integrated delivery, active-active replication, conflict detection and resolution, DDL/DML replication, Oracle GoldenGate event marker subsystem, advanced data manipulation and transformation techniques and advanced data mapping. In addition, you will 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.

Related Training

Required Prerequisites

Oracle GoldenGate 12c: Fundamentals for Oracle

Suggested Prerequisites

Oracle GoldenGate 12c: Troubleshooting and Tuning

Course Objectives

Familiarize the student with Data Conflict Avoidance Techniques

Set up and manage advanced deployment models

such as 3-node multi master replication configurations

Integrate Oracle GoldenGate with Oracle cluster configurations

Explain Oracle GoldenGate Advanced Configuration options

Describe and take advantage of the Integrated Capture feature to extract complex data types and compressed data

Introduce the new Integrate Replicat feature for improved data delivery

Configure and implement the Oracle GoldenGate Event Marker system

to enable data transformation based on event records in the transaction logs or in the trail files

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

Perform zero-downtime database migration

Course Topics

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

Oracle Goldengate With Oracle Real Application Clusters Configuration

Oracle RAC, Oracle GoldenGate and Business Continuity

Oracle GoldenGate Used in Combination with Oracle RAC

Oracle GoldenGate and the Oracle Database File System (DBFS)

Oracle DBFS and Oracle Clusterware

Configuring Oracle GoldenGate using the DBFS file systems

Oracle GoldenGate Event Marker System

Starting, Suspending, Stopping Processes, Performing a Transformation, Reporting Statistics, and Capturing Lag History

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

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)

Data Transformation Functions: Enabling Concatenation, Substitution, Case Changing, Numeric Conversion and Date Conversion

SQLEXEC Parameter to Invoke Stored Procedures or to Perform Native SQL Queries

Custom Behavior Through User Exits

The CUSEREXIT Parameter and its Options

User Exit Mandatory Parameters: EXIT_CALL_TYPE, EXIT_CALL_RESULT and EXIT_PARAMS

The EXIT_CALL_PROCESS_RECORD Function
Oracle GoldenGate Callback Routines Invoked Through ERCALLBACK
The usrdecs.h "C" Include File
JMS and Flat File Using Oracle GoldenGate Application Adapters
Connecting to the Java Subsystem Through the Java Native Interface (JNI)

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

Bidirectional Replication: Two-Node Configuration

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

Conflict Detection and Resolution – Custom Techniques

Workload Partitioning
Geographic or Topic-Based Segmentation
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

Multi-Master Replication Topology – Three-Node Configuration

Handling Multi-Master Configurations: Additional Limitations Compared to Active-Active
Dealing with the Lack of Support for DDL Replication
Data Convergence and Latency in a Multi-Master Topology
Decreasing Complexity by Enabling Segmentation and Node-Based Partitioning in the Application
Minimizing Data Conflict by Minimizing Latency
Resolving Simple Conflicts Using RESOLVECONFLICT with USEMIN, USEMAX and USEDELTA
Combining RESOLVECONFLICT with UPDATEROWEXISTS, INSERTROWEXISTS, DELETEROWEXISTS, UPDATEROWEXISTS
Increasing Troubleshooting Information Captured in Error and Discard Tables Using Oracle GoldenGate Facilities

Active Data Guard and Oracle GoldenGate. How to achieve Maximum Availability

Data Guard Fast Start Fail Over (FSFO)
Role Transition Complexity – Oracle GoldenGate to the Rescue
Oracle Bundled Agent (XAG)
Oracle Bundled Agent – The Key to Maximum Availability