Oracle GoldenGate 12c: Advanced Configuration for Oracle

This Oracle GoldenGate 12c training covers installing and configuring advanced features of the product, including active-active replication and conflict detection/resolution. Explore in more depth topics introduced in the fundamentals course, such as Event Marker and Advanced Data Transformation techniques. Implement 3-way, Multi-Master configurations and experiment with Oracle RAC, integrating Oracle GoldenGate with Oracle clusters. Configure Oracle GoldenGate replication in a multi-tenant database supporting pluggable databases (PDBs.)

Learn To

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

Learn How 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 will 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 will 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 will 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 will 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.

Prerequisites

Suggested Prerequisite

- Oracle GoldenGate 12c: Troubleshooting and Tuning Ed 1

Suggested Prerequisite

- Oracle GoldenGate 12c: Fundamentals for Oracle Ed 1
- Oracle GoldenGate 12c: Fundamentals for Oracle

Audience

- Administrator
- Architect
- Data Scientist
- Database Administrator
- Developer
- System Integrator
- System Inte

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 Using the Event Marker System
- 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

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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