

Oracle GoldenGate 23ai: Fundamentals ELS

Oracle Database

DURATION

4 Days

MODULES

14 Lectures

COURSE CODE

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Course Overview

The GoldenGate 23ai Fundamentals course teaches you to manage data replication and integration using GoldenGate's Microservices Architecture. You'll learn installation, migration, configuration, and management skills, including data filtering and encryption. This expertise will help solve data synchronization challenges, enhance system performance, and advance your career in data management.

What You Will Learn

Introduction

- Objectives
- Overview
- Why do you need Oracle GoldenGate?
- Use Cases
- Traditional Use Cases for Oracle GoldenGate
- Incredible Flexibility
- Distributed AI Processing with Vector Replication
- Oracle Middleware for Business Intelligence
- New Features
- Over the many years, GoldenGate has changed a lot...
- GoldenGate 23.4 100's of new features, full platform
- Supported Databases and Platforms
- Supported Connectivity with GoldenGate platform
- What is Oracle GoldenGate?
- Oracle GoldenGate Product Family
- Oracle GoldenGate Product Line
- Summary

Architecture

- Objectives

- Terminology
- Architecture
- Benefits of Microservices
- Microservices Architecture: Overview
- Microservices Architecture
- Directories and Variables
- Microservices Architecture: Additional Components
- The REST API
- Security Strategies
- GoldenGate Authentication and Authorization
- Roles
- Password plugin for GoldenGate Connections
- Identity Provider Integration with IAM/OAM
- Secure Communication
- Trails, Checkpoints and Recovery
- Trail Files
- Checkpoints: Capture
- Recovery
- Summary

Install and Deploy

- Objectives
- Operating System Requirements
- Memory and Disk Requirements
- Disk
- Network
- Privileges
- Install
- Software Bundle
- Installation Option
- Installation Details
- Installation Summary
- Install Product & Finish
- Deploy
- oggca.sh
- Adding a Deployment
- Service Manager Administrator
- User Deployment
- User Deployment Administrator
- Summary
- Configure Deployment
- Connect
- Web Browser
- Viewing the Services
- adminclient

- adminclient: Syntax
- Connect Using the adminclient
- Verify Deployment via the adminclient
- Identity Provider Plugin (IdP)
- How IdP Works
- Authorization Profiles
- Creating Authorization Profiles
- Improved Token-Based Authentication
- Adds Username or Access Token to a Secure Store
- Connecting Using Token Base (IdP)
- Summary

Preparing the Environment

- Objectives
- High-Level Configuration Steps
- Architecture
- Prepare the Environment
- Configuring Oracle GoldenGate
- Setting the NLS_LANG
- Enabling Database Parameters
- Enabling Supplemental Logging
- New Role-Based Privilege Model in Database 23ai
- Creating Database Users and Assigning Privileges
- Creating a Wallet and Credential Store
- Handling TCP/IP Errors
- Replication Lag Analysis
- Creating Checkpoint Table
- Summary

Extracts

- Objectives
- Overview
- GoldenGate Architecture Options
- Extract Overview
- Oracle GoldenGate Process Groups
- Process Group Naming Conventions Examples
- Parameter Files
- Trails Overview
- Capture Process
- Extracts
- Configuring Oracle GoldenGate
- Administration Service: Managed Process Profile
- Creating an Extract
- Extract Information
- Extract Options

- Add Extract: Managed Options
- Extract Parameters
- Administration Service: Extract Run
- Administration Service: Extract Actions
- Administration Service: Extract Information
- Administration Service: Checkpoint
- Administration Service: Statistics
- Administration Service: Parameters
- Administration Service: Cache Manager Statistics
- Administration Service: Report
- Administration Service: Integrated Diagnostics
- Downstream Capture
- Downstream Capture: Mine the logs on a different database
- Commands
- The Add Extract Command
- Add Extract: adminclient Examples
- Add Trail File: adminclient Examples
- Editing Extract Parameters: adminclient Example
- Starting the Extract: adminclient Example
- Extract Configuration for Oracle
- DBA_GOLDENGATE_SUPPORT_MODE view
- DDL Replication
- Data Definition Language Replication
- Summary

Distribution Path, Target Initiated Path & Receiver Service

- Objectives
- Distribution Service Overview
- Distribution Path
- Distribution Service Overview
- Multiple Protocols
- Distribution Service
- Create a Distribution Path
- Distribution Service: Main Page
- Steps to Create a Distribution Path
- Creating the Target User
- Creating the Source Path Connection
- Path Information
- Source Options
- Target Options
- Advanced Options
- Filtering Options
- Managed Options
- Adding a Path Using the adminclient
- Distribution Path Management

- Manage the Distribution Path
- Path Management Using the adminclient
- Path Information
- Path Statistics
- Target Initiated Paths
- Target Initiated Path Overview
- Target Initiated Paths
- adminclient: Target Initiated Paths
- Receiver Service
- Target Initiated Path Overview
- Receiver Service Overview
- Receiver Server Main Page
- Distribution Path Information
- Receiver Server Management Using the adminclient
- Summary

Initial Load

- Objectives
- Overview
- Architecture
- Initial Load Methods
- Advantages of Oracle GoldenGate Methods
- Resource Limitations
- Prerequisites for Initial Load
- Best Practices for Preparing Tables for Initial Load
- Initial Load Methods
- Oracle Database Best Practice Methods
- Initial Load Using RMAN: Destination Auxiliary Instance
- Integration with Oracle Data Pump: Source Database
- Integration with Oracle Data Pump: Target Database
- Configure Initial Load Using Oracle GoldenGate
- Methods
- File to Replicat
- Summary

Replicats

- Objectives
- Overview
- Architecture
- Replicat Overview
- Additional Details About Replicat
- Replicat Types
- Classic Replicat
- Coordinated Replicat
- Parallel Replication

- Parallel Replicat Control Parameters
- Comparison of Replicats
- Configure the Replicat
- Create Replicat
- Checkpoint Table
- Change Delivery Tasks
- Sample Replicat Configuration
- Creating Checkpoint Table
- Administration Service: Process Profile
- Webpage Overview
- Replicat Information
- Replicat Options
- Managed Options
- Parameter File
- Administration Service: Replicat Actions
- Administration Service: Extract Information
- Administration Server: Checkpoint
- Collisions
- Replicating Data Changes
- Avoiding Collisions with Initial Load
- Handling Collisions with Initial Load for Heterogenous Databases
- Process Information
- Obtaining Process Information: adminclient
- Process Report Files
- Administration Services: Replicat Statistics
- Administration Service: Parameters
- Administration Service: Report
- Administration Service: Heartbeat
- Administration Service: Integrated Diagnostics
- Extract Process Report Example
- Tracing the Replicat User
- Discard File
- Using the ggserr.log Error Log
- Using the System Logs
- Summary

Managing Extract Trails and Files

- Objectives
- Trail File and Metadata
- Trails and Files
- Trail Format
- Forward and Backward Compatibility Level
- Trails and Files: Cleanup
- Download Trail File from WebUI
- Trail File Header Area

- Trail File Record Data
- Logdump
- The logdump Utility
- Setting up LogDump Information
- Logdump File Header
- Viewing Canonical Trail Records
- Counting Records in the Trail
- Scan For MetaData (Database Definition Record)
- Scan For MetaData (Table Definition Record)
- Summary

Parameters

- Objectives
- Types of Parameter Files
- Types of Parameter Files
- Managed Process Settings Profile
- Extract Parameters
- Extract Parameter
- Common Extract Parameters
- Sample Extract Parameter File (TranLog)
- Sample Extract Parameter File (Initial Load)
- TRANLOGOPTIONS
- Extract Example: TranLogOptions Parameter
- Replicat Parameters
- Replicat Parameter
- Common Replicat Parameters
- Sample Replicat Parameter File
- DBOPTIONS
- Summary

Data Selection, Filtering and Transformations

- Objectives
- Data Mapping
- Data Mapping and Manipulation: Overview
- Column Mapping: Overview
- Column Mapping: Example
- Data Selection
- Data Selection: Filter
- Distribution Server Path: Filter Clause
- Data Transformation
- Converting, cleansing, and structuring data Converted to match destination
- system
- Column Values Functions
- Date Functions
- Strings and Numbers Functions

- Other GoldenGate Functions
- Summary

Advance Configuration & Security Options

- Objectives
- Macros
- Macros: Overview
- Creating Macros
- Invoking Macros
- Tracing Macro Expansion
- Creating Macro Libraries
- User Tokens
- User Tokens: Overview
- Environmental Values Available to @GETENV
- Obtaining Environmental Values
- Using User Tokens
- Viewing User Tokens in Logdump
- SQLEXEC
- SQLEXEC: Overview
- SQLEXEC: Usage with a LOOKUP Stored Procedure
- SQLEXEC: Usage with SQL Query
- Event Markers
- Event Marker System
- Event Actions Flowchart
- EventActions Order
- Implementing Event Actions: Replicat Example
- Event Actions: Automated Switchover Example
- Compression
- Security and Encryption
- Encrypting Trail Files
- Encryption Profiles
- Trail Encryption with Wallet
- Create an Encryption Profile
- Assign Encryption Profile – Extract/Replicat
- Assign Encryption Profile – Distribution Path
- Integration with Key Management Services
- Summary

Observability & Performance Monitoring

- Objectives
- Performance Metrics Overview
- Performance Metrics Service Overview
- Performance Metrics with GoldenGate
- Performance Metrics Service
- Components

- Metrics and Counters: Extract
- Extract Group: Process Performance Analysis
- Extract Group: Thread Performance Analysis
- Extract Group: Trail File Analysis
- Extract Group: Database Statistics
- Extract Group: Cache Statistics
- Replicat Group: Process Performance Analysis
- Replicat Group: Thread Performance Analysis
- Replicat Group: Trail File Analysis
- Replicat Group: Database Statistics
- Lag
- Lag Overview
- Heartbeat Mechanism
- Heartbeat Management Setup
- Heartbeat Table Objects
- Example: GG_LAG_HISTORY view
- MA Example: GG_LAG_HISTORY Query
- Heartbeat Lag Graph
- Extract Statistics
- Path Statistics
- Replicat Statistics
- StatsD
- StatsD Metrics by Telegraf
- Summary

Migration

- Objectives
- GoldenGate Microservices 23ai
- UPDATED: Support Timelines
- Migration Utility
- GoldenGate Migration
- Conversion Best Practices
- Requirements to run the utility
- Running the utility
- Post Execution
- Call to Action / Next Steps
- Summary