

Oracle GoldenGate 19c: Troubleshooting and Tuning LVC

Oracle Database

DURATION

4 Days

MODULES

12 Lectures

COURSE CODE

—

Course Overview

Learn How To: Use GGSCI commands for gathering process evidence Use the Oracle GoldenGate troubleshooting tools like Knowledge Documents, Documentation, SHOWSYNTAX parameter and the Logdump utility Troubleshoot problems in areas such as extraction, replication, missed transactions, mapping, synchronization, SQLEXEC, file maintenance and more Identify what causes slow startups Monitor lag and statistics Identify network and disk bottlenecks Perform tuning of Manager, Extract and Replicate Diagnose and tune the latest Integrated Extract and Replicat

What You Will Learn

Introduction

- Objectives
- Course Goals
- Agenda: Day 1
- Agenda: Day 2
- Agenda: Day 3
- Agenda: Day 4
- Summary

Gathering Evidence

- Objectives
- GGSCI and adminclient Commands
- MA Administration Server: Status and Details
- Viewing Checkpoint Details
- CA Viewing Checkpoint Details: Integrated Extract
- CA Viewing Checkpoint Details: Integrated Extract (continued)
- MA Viewing Checkpoint Details: Integrated Extract
- MA Viewing Checkpoint Details: Integrated Extract (continued)
- MA Administration Server: Integrated Extract Checkpoints
- MA Viewing Checkpoint Details: Distribution Server Path

- MA Viewing Checkpoint Details: Distribution Server Path (continued)
- Viewing Checkpoint Details
- CA Viewing Checkpoint Details: Integrated Replicat
- MA Viewing Checkpoint Details: Integrated Replicat
- MA Administration Server: Integrated Replicat Checkpoints
- Viewing Status and Events: Oracle Management Pack for Oracle GoldenGate
- Process Report
- CA Process Report: Initial Load Example
- MA Process Report: Initial Load Example
- Process Report Not Created
- Event (Error) Log
- Managing Event Log: ogg-ggserr.xml
- Event Log: Sample
- Discard File
- Discard File: Sample
- MA: Service Manager Log Information
- MA: Administration Server Log Information
- MA: Distribution Server Log Information
- MA: Receiver Server Log Information
- MA: extract.log
- MA: replicat.log
- MA: ER-events.log and restapi.log
- MA: health deployment command
- System Logs
- Linux System Logs
- Windows Event Viewer: Sample
- Practice 2 Overview: Gathering Evidence
- Quiz
- Summary

Tools

- Objectives
- Tools: Overview
- Knowledge Documents
- Oracle GoldenGate Documentation
- oggerr Utility
- chkprm Utility
- ShowSyntax Parameter: Overview
- ShowSyntax Parameter: Usage
- ShowSyntax Parameter: Classic Replicat Output for CDB Target Database
- ShowSyntax Parameter: Integrated Replicat Output for CDB Target Database
- ShowSyntax Parameter: Classic Replicat Output for Non-CDB Target
- Database
- logdump Utility: Overview
- Viewing Canonical Trail Records

- logdump Utility: Header Fields
- Using logdump: Open
- Using logdump
- Using logdump: ScanForHeader
- Using logdump: ScanForEndTrans
- Using logdump: Filter
- Using logdump: Hex
- Using logdump: Position
- Using logdump: Count
- Using logdump: Save
- Using logdump: Env
- Using logdump: Logging
- Getting logdump Help and Exiting
- Other Useful logdump Commands
- logdump Filtering
- Metadata Encapsulation: Overview
- Metadata in Trail Files
- Quiz
- Practice 3 Overview: Examining the Evidence
- Summary

Basic Problems and Process Startup Problems

- Objectives
- Basic Troubleshooting: Example 1 (Slide 1 of 2)
- Basic Troubleshooting: Example 1 (Slide 2 of 2)
- Basic Troubleshooting: Example 2 (Slide 1 of 2)
- Basic Troubleshooting: Example 2 (Slide 2 of 2)
- Startup Problems: Overview
- Startup Problems: Oracle GoldenGate Configuration (Slide 1 of 5)
- Startup Problems: Oracle GoldenGate Configuration (Slide 2 of 5)
- Startup Problems: Oracle GoldenGate Configuration (Slide 3 of 5)
- Startup Problems: Oracle GoldenGate Configuration (Slide 4 of 5)
- Startup Problems: Oracle GoldenGate Configuration (Slide 5 of 5)
- Startup Problems: Operating System
- Startup Problems: Permissions
- Startup Problems: Database Login
- Startup Problems: Slow Startup
- Startup Speed: Building the Object Record
- Startup Speed: Resolving Wildcards
- Quiz
- Practice 4 Overview: The Stubborn Startup
- Summary

Extraction Problems

- Objectives

- Extract Is Slow (Slide 1 of 4)
- Extract Is Slow (Slide 2 of 4)
- Extract Is Slow (Slide 3 of 4)
- Extract Is Slow (Slide 4 of 4)
- Extract Abends (Slide 1 of 3)
- Extract Abends (Slide 2 of 3)
- Extract Abends (Slide 3 of 3)
- Data Pump Abends (Slide 1 of 4)
- Data Pump Abends (Slide 2 of 4)
- Data Pump Abends (Slide 3 of 4)
- Data Pump Abends (Slide 4 of 4)
- Quiz
- Practice 5 Overview: The Troublesome Extract
- Summary

Replication Problems

- Objectives
- Replicat Is Not Moving
- Replicat Abends: Example 1
- Replicat Abends: Example 2
- Replicat Abends with OGG-02191 Incompatible Record (Slide 1 of 5)
- Replicat Abends with OGG-02191 Incompatible Record (Slide 2 of 5)
- Replicat Abends with OGG-02191 Incompatible Record (Slide 3 of 5)
- Replicat Abends with OGG-02191 Incompatible Record (Slide 4 of 5)
- Replicat Abends with OGG-02191 Incompatible Record (Slide 5 of 5)
- Replicat Abends: Diagnosis
- Replicat Abends: Example 3
- Preventing Replicat from Exiting
- Quiz
- Practice 6 Overview: The Rebellious Replicat
- Summary

Missed Transactions

- Objectives
- What can cause missed transactions and/or divergent data? (Slide 1 of 4)
- What can cause missed transactions and/or divergent data? (Slide 2 of 4)
- What can cause missed transactions and/or divergent data? (Slide 3 of 4)
- What can cause missed transactions and/or divergent data? (Slide 4 of 4)
- How can missed transactions and/or divergent tables be discovered?
- Transactions Not Being Processed (Slide 1 of 3)
- Transactions Not Being Processed (Slide 2 of 3)
- Transactions Not Being Processed (Slide 3 of 3)
- CA Including Missed Transactions: GGSCI Example
- MA Including Missed Transactions: adminclient Example
- MA Including Missed Transactions: Administration Server Example

- (Slide 1 of 2)
- MA Including Missed Transactions: Administration Server Example
- (Slide 2 of 2)
- Quiz
- Practice Overview 7: The Dissimilar Data
- Summary

Mapping and Synchronization Problems

- Objectives
- Mapping Problems: Overview
- Mapping Problems: Source Fetch Fails
- Mapping Problems: Table and Column Names
- Mapping Problems: Definitions
- Mapping Problems: Column-Missing Error
- Synchronization Problems: Testing for Out-of-Sync Rows
- Synchronization Problems: Oracle GoldenGate Veridata Web GUI
- Synchronization Problems: Causes of Out-of-Sync Data
- Synchronization Problems: DML on Target Tables
- Synchronization Problems: Tables Without Keys
- Synchronization Problems: Character Sets in Oracle Databases
- Synchronization Problems: Different Structures or Keys
- Synchronization Problems: Options
- Synchronization Problems: Resynchronizing (Slide 1 of 4)
- Synchronization Problems: Resynchronizing (Slide 2 of 4)
- Synchronization Problems: Resynchronizing (Slide 3 of 4)
- Synchronization Problems: Resynchronizing (Slide 4 of 4)
- Quiz
- Practice 8 Overview: The Mangled Mapping
- Summary

SQLEXEC, File-Maintenance, and Other Problems

- Objectives
- SQLEXEC Problems: SQL Does Not Execute
- SQLEXEC Problems: Tracing SQLEXEC Problems
- File-Maintenance Problems: Discard File Is Not Created
- File-Maintenance Problems: Discard File Is Too Big
- File-Maintenance Problems: Trail File Delays
- File-Maintenance Problems: Trail Files Are Not Being Purged
- File-Maintenance Problems: Trail Files Are Purged Too Soon
- File-Maintenance Problems: Report File Is Too Big
- Other Problems: Time Differences
- Other Problems: Too Many Open Cursors
- Other Problems: INFO Command Shows Incorrect Status
- MA Patching Oracle Platform with OPatch
- CA Patching: Preparing to Patch Oracle GoldenGate for Oracle Database

- CA Patching: Patching for Oracle Platform
- CA Patching: Patching Oracle GoldenGate for Heterogeneous Databases
- Quiz
- Practice 9 Overview: The Filled Files
- Summary

Classic Performance Tuning

- Objectives
- Monitoring: Overview
- Monitoring: What is lag?
- Monitoring: Lag Time Differences
- Monitoring: Checking Lag Statistics
- MA Monitoring: Checking Lag Statistics
- CA Monitoring: Controlling How Lag Is Reported
- Monitoring: Checking Volume Statistics
- Monitoring: Using the Report Parameter
- Monitoring: Using ReportCount
- Monitoring: Using the Stats Command
- Identifying Bottlenecks
- Identifying Bottlenecks: Extract Lag
- Identifying Bottlenecks: Pump and/or Path Lag
- Identifying Bottlenecks: Replicat Lag
- Bottlenecks: Determining Lag (Latency)
- MA Heartbeat Table Example: GG_LAG_HISTORY View
- CA Heartbeat Table Example: GG_LAG_HISTORY View
- Bottlenecks: Determining Lag by Looking at Checkpoints
- Bottlenecks: MA Lag Report Tasks
- Bottlenecks: Monitoring Lag (Latency)
- Bottlenecks: Measuring Throughput
- Bottlenecks: Finding the Cause
- Bottlenecks: Uncovering a Network Bottleneck
- Bottlenecks: Network Bottleneck Solution
- Bottlenecks: MA Network Bottleneck Solution
- Bottlenecks: Network Bottleneck Solution
- Bottlenecks: Disk Reads
- Bottlenecks: Disk Reads Solutions
- Bottlenecks: Disk Writes
- Automatically Restarting Processes that Fail
- Tuning Extract: Filtering and Conversion
- Tuning Extract: Database Fetching
- Tuning Extract: Log Reads
- Tuning Classic Extract: Dividing the Load
- Tuning Extract: Databases
- Review: Comparison of Replicats
- Tuning Classic Replicat: Dividing the Load

- Tuning Coordinated Replicat: Dividing the Load
- Tuning Classic Replicat: Full Table Scans
- Tuning Classic Replicat: Transaction Type
- Tuning Classic Replicat: BatchSQL Overview
- Tuning Classic Replicat: BatchSQL Syntax
- Tuning Classic Replicat: Transaction Type
- Tuning Classic Replicat: Checkpoint Frequency
- Tuning Classic Replicat: Database
- Parallel Replicat: Highly Scalable Apply Engine
- Tuning Parallel Replicat: Control Parameters
- Quiz
- Practice 10 Overview: Performance Tuning
- Summary

Integrated Performance Tuning

- Objectives
- Integrated Capture: Architecture
- Logmining Server Architecture
- Integrated Capture: Architecture
- Integrated Capture: Deployment Options
- Integrated Capture: Syntax
- Oracle GoldenGate Database Views for Integrated Extract
- Integrated Replicat: Architecture
- Integrated Delivery
- Integrated Delivery in Detail
- Integrated Replicat Performance
- Integrated Replicat Performance Comparison
- Parallel Apply: Reasons to Use Dependency Computation and Scheduling
- Parallel Apply Processing
- Dependency-Aware Apply: Source Database Logging
- Dependency-Aware Apply: Trail File Logging
- Workload-Based Autotuning
- Autotune Parallelism
- Workload-Based Autotuning BATCHSQL_MODE
- Workload-Based Autotuning Options
- Direct Replicat (OCI) Processing
- Direct Replicat Processing
- BATCHSQL Support
- Bidirectional Replication
- Integrated Replicat: Syntax
- Changes to Replicat Parameters
- Quiz
- Oracle GoldenGate Database Views for Integrated Replicat
- Practice 11 Overview: Integrated Performance Tuning
- Summary

- Objectives
- Troubleshooting Aids
- Troubleshooting Aids: Where to Find Them
- Replication Performance Advisor: UTL_RPADV Package
- UTL_RPADV Report
- UTL_RPADV Performance Metrics
- UTL_RPADV Replication Paths
- UTL_RPADV Replication Component Analysis for Integrated Extract
- UTL_RPADV Rate Level Statistics for Integrated Extract
- Oracle GoldenGate Healthcheck Script: GoldenGate 12.3 and Higher
- Oracle GoldenGate Healthcheck Script: GoldenGate Prior to 12.3
- Oracle GoldenGate Healthcheck Script
- Healthcheck Script: Overview Example
- Healthcheck Script: Database Example
- Healthcheck Script: Extract Example
- Healthcheck Script: Replicat Example
- Healthcheck Script: Table Statistics and Errors Example
- Healthcheck Script: Tools Example
- Healthcheck Script: Report Map Example
- Oracle Database Enhanced AWR Report
- Oracle GoldenGate Replication Statistics
- Replication Performance at a Glance
- Analyzing Data Capture
- Oracle GoldenGate Apply Reader Statistics
- Apply Server and Apply Coordinator Statistics
- DML Operations
- Quiz
- Practice 12 Overview: Integrated Capture and Delivery Troubleshooting
- Summary