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| Oracle GoldenGate Workshop |
| Lab Handbook |
| Oracle Data Integration Solutions |

# Introduction

The GoldenGate Workshop is designed to introduce replication capabilities from relational sources to relational targetsAdditional targets may be supported using open-source pluggable adapters. For more information, please discuss this with the workshop facilitator or the Data Integration Sales team.

KEY FEATURES

* Non-invasive, real-time transactional data streaming
* • Secured, reliable and fault-tolerant data

delivery

• Easy to install, configure and maintain

• Streams real-time changed data

• Easily extensible and flexible to stream changed data to other big data targets and message queues

KEY BENEFITS

* Improve IT productivity in integrating with big data systems • Use real-time data in big data analytics for more timely and reliable insight • Improve operations and customer experience with enhanced business insight • Minimize overhead on source systems to maintain high performance

Oracle GoldenGate for Big Data provides optimized and high performance delivery to Flume, HDFS, Hive, HBase, Kafka and Cassandra to support customers with their real-time big data analytics initiatives.

Oracle GoldenGate for Big Data includes Oracle GoldenGate for Java, which enables customers to easily integrate to additional big data systems, such as Apache Storm, Apache Spark, Oracle NoSQL, MongoDB, SAP HANA, IBM PureData System for Analytics and many others.

Oracle GoldenGate for Big Data’s real-time data streaming platform also allows customers to keep their big data reservoirs, or big data lakes, up to date with their production systems.

SUMMARY

Oracle GoldenGate for Big Data offers high-performance, fault-tolerant, easy-to-use, and flexible real- time data streaming platform for big data environments. It easily extends customers’ real-time data

integration architectures to big data systems without impacting the performance of the source systems and enables timely business insight for better decision making.

## Disclaimer

#### This workshop is only for learning and testing purposes. None of the files from the labs should be used in a production environment. Please review this file: GG4BDWorkshop-LicenseAgreement.txt

# Oracle GoldenGate Workshop Architecture

There are 7 hands-on labs in this workshop. GoldenGate software for MySQL are auto-installed as part of the initial setup. After running Lab 1 – Install GG for Big Data, the rest of the labs can be run independently of each other, and in any order.

Lab1\_OGG\_Classic\_Handson\_Prerequisites

Lab2\_OGG\_Env\_Initial\_Setup

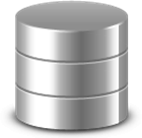
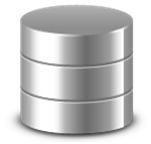
Lab3\_One\_Way\_Replication\_Oracle\_Oracle\_MySQL

Lab4\_One\_Way\_Replication\_MySQL\_Oracle\_Oracle

Lab5\_Active\_Active\_Replication Lab6\_Column\_Conversions

# Lab 1 – Install GoldenGate 12.3.0.1.0 binaries

## Lab Architecture



Manager

Manager

mgr.prm

mgr.prm

extmysql

Local

Trail Files

pmpmysql

Remoterepmysql

Trail Files

MySQL

Source Database (ggsource)

./dirdat/et

./dirdat/rt

Extract

Parameter file

Pump

Parameter file

Replicat

Parameter file

MySQL

Target Database (ggtarget)

extmysql.prm

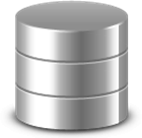
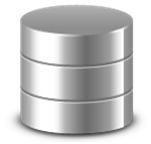
pmpmysql.prm

repmysql.prm

End of Lab 1.

# Lab 2 – MySQL  MySQL unidirectional replication

## Lab Architecture



Manager

Manager

mgr.prm

mgr.prm

extmysql

Local

Trail Files

pmpmysql

Remoterepmysql

Trail Files

MySQL

Source Database (ggsource)

./dirdat/et

./dirdat/rt

Extract

Parameter file

Pump

Parameter file

Replicat

Parameter file

MySQL

Target Database (ggtarget)

extmysql.prm

pmpmysql.prm

repmysql.prm

This lab is intended to give you familiarity with how to configure GG for database to database replication. If you are already familiar with GG, you can choose to skip this lab.

In this lab we will load data in MySQL database ‘ggsource’. The GG extract process ‘extmysql’ will

capture the changes from MySQL’s binary logs and write them to the local trail file. The pump process

‘pmpmysql’ will route the data from the local trail (on the source) to the remote trail (on the target). The replicat process ‘repmysql’ will read the remote trail files, and apply the changes to the MySQL database ‘ggtarget’

Login to the VM using putty on your laptop, or the ‘terminal’ tool in the QuickStart VM GUI: Host: 127.0.0.1

Port:22

### User ID: ggadmin

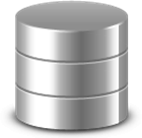
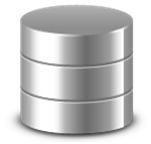
Password: oracle

*If already at a Unix prompt, you can access the Lab Menu by typing the alias ‘labmenu’*

End of Lab 2.

# Lab 3 – MySQL --> HDFS (delimited text format)

## Lab Architecture



Manager

Manager

mgr.prm

mgr.prm

extmysql

Local

Trail Files

pmpmysql

Remoterepmysql

Trail Files

MySQL

Source Database (ggsource)

./dirdat/et

./dirdat/rt

Extract

Parameter file

Pump

Parameter file

Replicat

Parameter file

MySQL

Target Database (ggtarget)

extmysql.prm

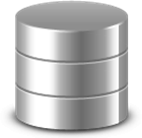
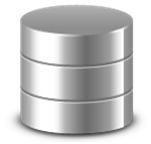
pmpmysql.prm

repmysql.prm

End of Lab 3.

# Lab 4 – MySQL --> Hive (Avro format)

## Lab Architecture



Manager

Manager

mgr.prm

mgr.prm

extmysql

Local

Trail Files

pmpmysql

Remoterepmysql

Trail Files

MySQL

Source Database (ggsource)

./dirdat/et

./dirdat/rt

Extract

Parameter file

Pump

Parameter file

Replicat

Parameter file

MySQL

Target Database (ggtarget)

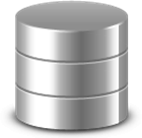
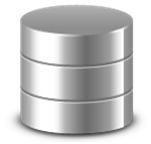
extmysql.prm

pmpmysql.prm

repmysql.prm

# Lab 5 – MySQL --> HBase

## Lab Architecture



Manager

Manager

mgr.prm

mgr.prm

extmysql

Local

Trail Files

pmpmysql

Remoterepmysql

Trail Files

MySQL

Source Database (ggsource)

./dirdat/et

./dirdat/rt

Extract

Parameter file

Pump

Parameter file

Replicat

Parameter file

MySQL

Target Database (ggtarget)

extmysql.prm

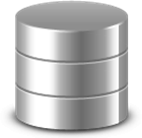
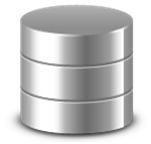
pmpmysql.prm

repmysql.prm

End of Lab 5.

# Lab 6 – MySQL --> Kafka (Json format)

## Lab Architecture



Manager

Manager

mgr.prm

mgr.prm

extmysql

Local

Trail Files

pmpmysql

Remoterepmysql

Trail Files

MySQL

Source Database (ggsource)

./dirdat/et

./dirdat/rt

Extract

Parameter file

Pump

Parameter file

Replicat

Parameter file

MySQL

Target Database (ggtarget)

extmysql.prm

pmpmysql.prm

repmysql.prm

End of Lab 6.