

## Oracle Database 12c: Data Guard Administration

**Duration:** 4 Days

### What you will learn

This Oracle Database 12c: Data Guard Administration Ed 1 training teaches you how to use Oracle Data Guard. Expert Oracle University instructors will demonstrate how this solution protects your Oracle database against planned and unplanned downtimes. In this course, you will be introduced to Oracle Database Exadata Cloud Service.

Learn To:

Build highly available systems.

Offload business processing needs to another system.

Offload backup needs to another system.

Gain an understanding of Oracle Database Exadata Cloud Service.

### Benefits to You

You'll walk away from this course with an understanding of how Data Guard standby databases can be used to support various production functions. These functions include reporting, querying and testing, while in a standby role.

### Oracle Data Guard 12c

This course will also teach you about the new Oracle Data Guard 12c features and architecture. You'll get a chance to explore topics like Oracle Active Data Guard, Far Sync, rolling upgrades and snapshot standby databases. Furthermore, enrolling in this course will help you learn how to manage and troubleshoot a Data Guard configuration.

### Audience

Database Administrators

Support Engineer

Technical Consultant

### Related Training

#### *Required Prerequisites*

Database Administration

Linux operating system fundamentals

Oracle Database 11g: Administration Workshop II Release 2

Oracle Database 11g: Administration Workshop I Release 2

#### *Suggested Prerequisites*

Basic understanding of PL/SQL and Triggers

## Course Objectives

Use Data Guard standby databases to support production functions such as reporting, querying, testing, and performing backups

Create and manage physical and logical standby databases

Use Enterprise Manager Cloud Control and the Data Guard command-line interface (DGMGRL) to maintain a Data Guard configuration

Use Data Guard to achieve a highly available Oracle database

Gain an understanding of Oracle Database Exadata Cloud Service

## Course Topics

### Introduction to Oracle Data Guard

What Is Oracle Data Guard?

Types of Standby Databases

Types of Data Guard Services

Role Transitions: Switchover and Failover

Oracle Data Guard Broker Framework

Choosing an Interface for Administering a Data Guard Configuration

Oracle Data Guard: Architecture(Overview)

Primary Database Processes

### Networking for Oracle Data Guard

Networking Overview

Listener.ora Configuration

Statics vs. Dynamic Registration

Static Entries for Database Duplication and SQL Maintenance

Static Entries for Broker Operations

Oracle Network Configuration Tuning

Tnsnames.ora Configuration

### Creating a Physical Standby Database by Using SQL and RMAN Commands

Steps to Create a Physical Standby Database

Preparing the Primary Database

FORCE LOGGING Mode

Configuring Standby Redo Logs

Creating Standby Redo Logs

Using SQL to Create Standby Redo Logs

Viewing Standby Redo Log Information

Setting Initialization Parameters on the Primary Database to Control Redo Transport

### Oracle Data Guard Broker: Overview

Oracle Data Guard Broker: Features

Data Guard Broker: Components

Data Guard Broker: Configurations

Data Guard Broker: Management Model

Data Guard Broker: Architecture

Data Guard Monitor: DMON Process  
Benefits of Using the Data Guard Broker  
Comparing Configuration Management With and Without the Data Guard Broker

### **Creating a Data Guard Broker Configuration**

Data Guard Broker: Requirements  
Data Guard Broker and the SPFILE  
Data Guard Monitor: Configuration File  
Data Guard Broker: Log Files  
Creating a Broker Configuration  
Defining the Broker Configuration and the Primary Database Profile  
Adding a Standby Database to the Configuration  
Enabling the Configuration

### **Creating a Physical Standby Database by Using Enterprise Manager Cloud Control**

Using Oracle Enterprise Manager to Create a Broker Configuration  
Creating a Configuration  
Creating a New Configuration  
Adding a Standby Database to an Existing Configuration  
Using the Add Standby Database Wizard  
Standby Database Creation: Processing  
Standby Database Creation: Progress  
Verifying a Data Guard Configuration

### **Creating a Logical Standby Database**

Benefits of Implementing a Logical Standby Database  
Logical Standby Database: SQL Apply Architecture  
SQL Apply Process: Architecture  
Preparing to Create a Logical Standby Database  
Unsupported Objects  
Unsupported Data Types  
Checking for Unsupported Tables  
Checking for Tables with Unsupported Data Types

### **Creating and Managing a Snapshot Standby Database**

Snapshot Standby Databases: Overview  
Snapshot Standby Database: Architecture  
Converting a Physical Standby Database to a Snapshot Standby Database  
Activating a Snapshot Standby Database: Issues and Cautions  
Snapshot Standby Database: Target Restrictions  
Viewing Snapshot Standby Database Information  
Using DGMGRL to View Snapshot Standby Database Information  
Converting a Snapshot Standby Database to a Physical Standby Database

### **Using Oracle Active Data Guard**

Oracle Active Data Guard  
Using Real-Time Query  
Checking the Standby's Open Mode  
Understanding Lag in an Active Data Guard Configuration  
Monitoring Apply Lag: V\$DATAGUARD\_STATS  
Monitoring Apply Lag: V\$STANDBY\_EVENT\_HISTOGRAM  
Setting a Predetermined Service Level for Currency of Standby Queries

## **Configuring Data Protection Modes**

Data Protection Modes and Redo Transport Modes

Maximum Protection Mode

Maximum Availability Mode

Maximum Performance Mode

Comparing Data Protection Modes

Setting the Data Protection Mode by Using DGMGRL

Setting the Data Protection Mode

## **Performing Role Transitions**

Role Management Services

Role Transitions: Switchover and Failover

Switchover

Preparing for a Switchover

Performing a Switchover by Using DGMGRL

Performing a Switchover by Using Enterprise Manager

Considerations When Performing a Switchover to a Logical Standby Database

Situations That Prevent a Switchover

## **Using Flashback Database in a Data Guard Configuration**

Using Flashback Database in a Data Guard Configuration

Overview of Flashback Database

Configuring Flashback Database

Configuring Flashback Database by Using Enterprise Manager

Using Flashback Database Instead of Apply Delay

Using Flashback Database and Real-Time Apply

Using Flashback Database After RESETLOGS

Flashback Through Standby Database Role Transitions

## **Enabling Fast-Start Failover**

Fast-Start Failover: Overview

When Does Fast-Start Failover Occur?

Installing the Observer Software

Fast-Start Failover Prerequisites

Configuring Fast-Start Failover

Setting the Lag-Time Limit

Configuring the Primary Database to Shut Down Automatically

Automatic Reinstatement After Fast-Start Failover

## **Managing Client Connectivity**

Understanding Client Connectivity in a Data Guard Configuration

Understanding Client Connectivity: Using Local Naming

Preventing Clients from Connecting to the Wrong Database

Managing Services

Understanding Client Connectivity: Using a Database Service

Creating Services for the Data Guard Configuration Databases

Configuring Role-Based Services

Adding Standby Databases to Oracle Restart Configuration

## **Backup and Recovery Considerations in an Oracle Data Guard Configuration**

- Using RMAN to Back Up and Restore Files in a Data Guard Configuration
- Offloading Backups to a Physical Standby
- Restrictions and Usage Notes
- Backup and Recovery of a Logical Standby Database
- Using the RMAN Recovery Catalog in a Data Guard Configuration
- Creating the Recovery Catalog
- Registering a Database in the Recovery Catalog
- Setting Persistent Configuration Settings

### **Patching and Upgrading Databases in a Data Guard Configuration**

- Upgrading an Oracle Data Guard Broker Configuration
- Upgrading Oracle Database in a Data Guard Configuration with a Physical Standby Database
- Upgrading Oracle Database in a Data Guard Configuration with a Logical Standby Database
- Using DBMS\_ROLLING to Upgrade the Oracle Database
- Requirements for Using DBMS\_ROLLING to Perform a Rolling Upgrade
- Leading Group Databases and Leading Group Master
- Trailing Group Databases and Trailing Group Master
- Performing a Rolling Upgrade by Using DBMS\_ROLLING

### **Monitoring a Data Guard Broker Configuration**

- Monitoring the Data Guard Configuration by Using Enterprise Manager Cloud Control
- Viewing the Data Guard Configuration Status
- Monitoring Data Guard Performance
- Viewing Log File Details
- Enterprise Manager Metrics and Alerts
- Data Guard Metrics
- Managing Data Guard Metrics
- Viewing Metric Value History

### **Optimizing a Data Guard Configuration**

- Monitoring Configuration Performance by Using Enterprise Manager Cloud Control
- Optimizing Redo Transport Services
- Setting the ReopenSecs Database Property
- Setting the NetTimeout Database Property
- Optimizing Redo Transmission by Setting MaxConnections
- Setting the MaxConnections Database Property
- Compressing Redo Data by Setting the RedoCompression Property
- Delaying the Application of Redo

### **Oracle Database Exadata Cloud Service Overview**

- Introducing Exadata Cloud Service
- Service Configuration, Connection, Architecture & Availability
- Data Security & Management Responsibilities
- Storage Configuration & Management Details
- Simple Web-Based Provisioning & Management
- REST APIs
- Backup and Recovery
- Migrating to Exadata Cloud Service