

### 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.

Learn To:

Build highly available systems.

Offload business processing needs to another system.

Offload backup needs to another system.

#### 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 to achieve a highly available Oracle database

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

#### **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 Maintenence

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

#### **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 Zero Lag Between the Primary and Standby Databases

## **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