

## Oracle Database 11g: Data Guard Administration Release 2

Duration: 4 Days

### What you will learn

In this course, students learn how to use Oracle Data Guard to help protect their Oracle database against planned and unplanned downtimes. They also learn how Data Guard standby databases can be used to support production functions such as reporting, querying, and testing, while in a standby role.

The course includes Data Guard architecture, the configuration of physical and logical standby databases, and role transitions. Oracle Data Guard 11g features, including Oracle Active Data Guard and snapshot standby databases are outlined. In addition, management of a Data Guard configuration and troubleshooting are discussed.

Learn to:

Offload business processing needs to another system

Offload backup needs to another system

Build highly available systems

### Audience

Database Administrators

Support Engineer

Technical Consultant

### Prerequisites

#### *Suggested Prerequisites*

Oracle Database 11g: Administration Workshop II DBA Release 2

Oracle Enterprise Manager 10g Grid Control

Oracle Database 11g: Administration Workshop I DBA Release 2

### Course Objectives

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

Create and manage physical and logical standby databases

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

Use Data Guard to achieve a highly available Oracle database

### Course Topics

#### **Introduction to Oracle Data Guard**

Causes of Data Loss

Oracle Data Guard Architecture

Types of Standby Databases (benefits of each type)

Using the Data Guard Broker

Differentiating Between Standby Databases and Data Guard Broker Configuration

Data Protection Modes

Performing Role Transitions

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

Preparing the Primary Database

Creating the Physical Standby Database

### **Oracle Data Guard Broker: Overview**

Oracle Data Guard Broker Features

Oracle Data Guard Broker Configurations

Data Guard Monitor Process

Data Guard Monitor Configuration Files

Benefits of Using the Data Guard Broker

Comparing Configuration Management With and Without the Broker

Using DGMGRL

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

Defining a Data Guard Configuration (overview)

Setting up the Broker Configuration Files

Setting the DG\_BROKER\_START Initialization Parameter to TRUE to start the Data Guard Broker

Creating the Broker Configuration

Adding the Standby Database to the Configuration

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

Using Enterprise Manager Grid Control to Create a Physical Standby Database

Using the Add Standby Database Wizard

Verifying a Configuration

Editing Standby database properties

Viewing the Data Guard Configuration Status

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

Monitoring the Data Guard Configuration by Using Enterprise Manager Grid Control

Verifying the Configuration

Viewing Logical Standby Database Metrics

Using the DGMGRL SHOW CONFIGURATION Command to Monitor the Configuration

Viewing Standby Redo Log Information

Monitoring Redo Apply

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

Snapshot Standby Database: Architecture

Converting a Physical Standby Database to a Snapshot Standby Database

Activating a Snapshot Standby Database: Issues and Cautions

Viewing Snapshot Standby Database Information

Converting a Snapshot Standby Database to a Physical Standby Database

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

Using Real-Time Query

Enabling and Disabling Real-Time Query

Enabling Block Change Tracking on a Physical Standby Database

Creating Fast Incremental Backups

Monitoring Block Change Tracking

## **Configuring Data Protection Modes**

- Preparing to Create a Logical Standby Database
- Checking for Unsupported Objects , Data Types, and Tables
- Ensuring Unique Row Identifiers
- Creating the Logical Standby Using SQL Commands and Grid Control
- Securing your Logical Standby Database

## **Performing Role Transitions**

- Contrast switchover vs. failover
- Preparing for a Switchover
- Performing a Switchover using DGMGRL and Enterprise Manager
- Types of Failovers
- Re-enabling Disabled Databases

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

- Overview of Flashback Database
- Configuring Flashback Database
- Using Flashback Database Instead of Apply Delay
- Using Flashback Database and Real Time Apply
- Flashback Through Standby Database Role Transitions
- Using Flashback Database After Failover

## **Enabling Fast-Start Failover**

- Installing the Observer Software
- Configuring Fast-Start Failover
- Configuring Automatic Reinstatement of the Primary Database
- Initiating Fast-Start Failover from an Application
- Disabling Fast-Start Failover
- Starting and Stopping the Observer
- Moving the Observer to a new Host

## **Managing Client Connectivity**

- Understanding Client Connectivity in a Data Guard Configuration
- Preventing Clients from Connecting to the Wrong Database
- Creating Services for the Data Guard Configuration Databases
- Automating Client Failover in a Data Guard Configuration
- Automating Failover for OCI Clients
- Automating Failover for OLE DB Clients
- Configuring JDBC Clients for Failover

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

- 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
- Configuring Daily Incremental Backups
- Using a Backup to Recover a Data File on the Primary Database
- Recovering a Data File on the Standby Database

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

- Upgrading an Oracle Data Guard Broker Configuration
- Using SQL Apply to Upgrade the Oracle Database

- Performing a Rolling Upgrade by Using SQL Apply
- Performing a Rolling Upgrade by Using an Existing Logical Standby Database
- Performing a Rolling Upgrade by Creating a New Logical Standby Database
- Performing a Rolling Upgrade by Using a Physical Standby Database

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

- Monitoring the Data Guard Configuration by Using Enterprise Manager Grid Control
- Verifying the Configuration
- Viewing Log
- Using Enterprise Manager Data Guard Metrics
- Using the DGMGRL SHOW CONFIGURATION Command to Monitor the Configuration
- Viewing Standby Redo Log Information
- Monitoring Redo Apply

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

- Using Enterprise Manager Grid Control to monitor configuration performance
- Setting the ReopenSecs and NetTimeout database properties
- Compressing Redo Data
- Delaying the Application of Redo Data
- Optimizing SQL Apply
- Adjusting the Number of APPLIER and PREPARER processes