

Oracle Database 11g: Data Guard Administration Release 2

Course overview:

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

Required Prerequisites:

- [Oracle Database 11g: Administration Workshop I Release 2](#)
- [Oracle Database 11g: Administration Workshop II Release 2](#)

Course Objective:

- 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 Grid Control and the Data Guard command-line interface (DGMRGL) to maintain a Data Guard configuration
- Use Data Guard to achieve a highly available Oracle database

Who should attend?

- Database Administrators
- Support Engineer
- Technical Consultant

Duration: 32 Hours

Outline for this course:

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 Log File Details
- Using Enterprise Manager Data Guard 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 File Details
- 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