



Oracle Database 12cR2 Data Guard

Duration: 4 Days **Course Code: O12CDG** **Delivery Method: Company Event**

Overview:

This course introduces the main architectural concepts of Oracle Data Guard. The delegate will learn how to use Oracle Data Guard to protect an Oracle Database against planned and unplanned downtime. The delegate will also learn how to create and manage physical, logical and snapshot standby databases and how to use standby databases for reporting, querying and testing purposes. Versions supported 12cR2, 18c, 19c.

Company Events

These events can be delivered exclusively for your company at our locations or yours, specifically for your delegates and your needs. The Company Events can be tailored or standard course deliveries.

Target Audience:

The Oracle Database 12cR2 Data Guard course is designed for database administrators and technical support staff who are required to plan and implement Oracle Data Guard configurations.

Objectives:

- This course aims to provide the delegate with the knowledge to be able to plan, implement, manage and troubleshoot Oracle Data Guard standby database configurations.
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Prerequisites:

A working knowledge of Oracle Database Administration is required, these skills can be obtained by attendance on the pre-requisite Oracle Administration and Oracle Database Backup and Recovery with RMAN courses.

This course is run on a Linux operating system and a good working knowledge of Linux/UNIX is required. This knowledge can be gained by attendance on the pre-requisite Linux Introduction course.

Where Oracle 12cR2 courses are listed in the Pre-requisite Courses section equivalent Oracle 11g courses will also suffice.

Follow-on-Courses:

- Oracle Database 12cR2 Install & Upgrade (O12CIU)
 - Oracle Database 12cR2 DBA Performance Tuning & Management (O12CDBAPT)
 - Oracle Database 12cR2 RAC and Grid Infrastructure Administration (O12CRAC)
 - Oracle Database 12cR2, 18c and 19c New Features for Administrators (ONF)
 - Oracle 12c Container and Pluggable Database Administration (O12CCPA)
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Content:

Oracle Database 12cR2 Data Guard Training Course Course Contents - DAY 1

Course Introduction

- Administration and Course Materials
- Course Structure and Agenda
- Delegate and Trainer Introductions

Session 1: DATA GUARD OVERVIEW

- Overview of Data Guard
- Requirements for Maintaining a Standby Database
- Data Guard Terminology
- Types of Standby Databases
- Levels of Protection
- Physical, Logical and Snapshot Standby Databases
- Role Transition Management Services
- Data Guard Interfaces
- Standby Database Creation
- Data Guard Installation
- SYSDG Administrative Privilege for Data Guard Operations

Session 2: DATA GUARD ARCHITECTURE

- Data Guard Architecture
- Processes Active on the Primary Database
- Processes Active on the Standby Database
- Data Guard Architecture and Initialization Parameters
- Data Guard usage with a Multitenant Database
- PDB Creation and Cloning in a Multitenant Architecture Environment

Session 3: CREATE A PHYSICAL STANDBY DATABASE WITH SQL COMMANDS

- Prepare the Primary Database for Data Guard
- Initialization Parameters for the Standby Database
- Datafile and Controlfile Duplication
- Create the Standby Instance
- Network Files Configuration
- Activate the Standby Database
- Verify Primary and Standby Databases are Working
- Archive Log Loss
- Open the Standby Database
- Shut Down and Start Up the Data Guard Environment
- Active Data Guard
- Far Sync Instance
- Monitor the Primary and Standby Databases

Session 4: REDO TRANSPORT SERVICES

- Overview of Redo Transport Services

Session 6: ROLE TRANSITION USING SQL COMMANDS

- Role Transition Overview
- Prepare the Primary Database
- Prepare the Standby Database
- Perform a Switchover
- Perform a Failover
- Reinstate the Failed Primary
- Overview of Application Continuity in a Data Guard Environment

Session 7: CHANGE MANAGEMENT

- Change Management Overview
- Add Datafiles or Tablespaces
- Drop Tablespaces and Delete Datafiles
- Transportable Tablespaces
- Rename Datafiles
- Add or Drop Redo Log Files
- Nologging Operations
- Lost Write Detection

Session 8: CREATE A STANDBY DATABASE WITH RECOVERY MANAGER

- Overview of Standby Database Creation with RMAN
- Create a Suitable Backup with RMAN
- Standby Path and File Names
- Build the Standby Instance
- Create a Standby Database with RMAN

Session 9: BACKUP AND RECOVERY CONSIDERATIONS IN AN ORACLE DATA GUARD CONFIGURATION

- Implement a Backup and Recovery Strategy
 - The Usage of RMAN in a Data Guard Configuration
 - Backup and Recovery of a Primary Database with a Physical Standby Database
 - Backup and Recovery of a Logical Standby Database
 - Use a RMAN Recovery Catalog in a Data Guard Configuration
 - Create the Recovery Catalog
 - Register a Database in the Catalog
 - Configure Daily Incremental Backups
 - Recover a Datafile on the Primary Database
 - Recover a Datafile on the Standby Database
 - Restore and Recover Datafiles across the Network
 - Enable Block Change Tracking for a Physical Standby Database
- Oracle Database 12cR2 Data Guard Training Course Course Contents - DAY 3

Session 13: MANAGE A CONFIGURATION USING THE BROKER

- Display and Edit Database Properties
- Set the Configuration Protection Mode
- Configure Fast Start Failover
- Execute a Switchover
- Execute a Failover
- Alter the state of a Database
- Monitor the Configuration

Session 14: CREATE A STANDBY DATABASE WITH THE DBCA

- Overview of Creating a Physical Standby Database Creation with the DBCA
- Create a Standby Database with the DBCA
- Add Entries to the tnsnames.ora File
- Use the Data Guard Broker to Create the Configuration
- Create the Standby Redo Logs on the Primary Database
- Create the Standby Redo Logs on the Standby Database
- Verify the Data Guard Configuration
- Edit the listener.ora File on the Primary Database
- Edit the listener.ora File on the Standby Database

Session 15: CREATING A LOGICAL STANDBY USING SQL COMMANDS

- Overview of Creating a Logical Standby Database using SQL Commands
 - Prepare the Primary Database
 - Prepare the Standby Database
 - Transition a Physical Standby to a Logical Standby
 - Start the Standby Instance
 - Real Time Apply
 - Delete Archives
 - Dictionary Views Containing useful Standby Information
 - Monitor the SQL Apply Progress
- Oracle Database 12cR2 Data Guard Training Course Course Contents - DAY 4

Session 16: MANAGING A LOGICAL STANDBY DATABASE

- Overview of SQL Apply Architecture
- Transaction Size Considerations
- DML and DDL Apply Considerations
- Intercept DDL Statements
- Skip DML and DDL on the Standby Database
- Modify a Logical Standby Database
- Materialized Views on the Primary Database
- Table Instantiation
- Restart SQL Apply

- How Data Guard Sends Redo Data
- Control when Redo Data is Sent with the VALID_FOR Option
- Handle Transmission Errors
- Manage Archive Gaps
- Levels of Protection
- Fast-Sync Mode

Session 5: REDO APPLY SERVICES

- Overview of Log Apply Services
 - Apply Redo Data Immediately
 - Delay Redo Data Application
 - Terminate Redo Apply Services
 - Configure a Cascading Standby Database
 - Create a Snapshot Standby Database
- Oracle Database 12cR2 Data Guard Training Course Course Contents - DAY 2

Session 10: USE FLASHBACK DATABASE IN A DATA GUARD CONFIGURATION

- Overview of Flashback Database Usage in a Data Guard Configuration
- Configure Flashback Database
- Use Flashback Database Instead of Apply Data
- Use Flashback Database and Real Time Apply
- Flashback through Standby Database Role Transitions
- Use Flashback Database after Failover

Session 11: DATA GUARD BROKER OVERVIEW

- Overview of Oracle Data Guard Broker
- Oracle Enterprise Manager
- The DGMGRL Command Line Interface
- Data Guard Monitor
- Install Oracle Data Guard
- Start up the Data Guard Broker
- The v\$DATAGUARD_PROCESS View

Session 12: BUILD A CONFIGURATION USING THE BROKER

- Prepare for a Configuration Build
- Configure the Primary Database
- Configure the Standby Database
- Validate a Database
- Validate a Database spfile
- Validate Network Configuration
- Validate Status Connect Identifier
- Show, Enable and Disable the Configuration

- Customize DBA_LOGSTDBY_EVENTS
- Rolling Upgrades using Logical Standby
- Rolling Upgrades on a Physical Standby
- Job Scheduling on a Logical Standby

Session 17: TUNING A STANDBY DATABASE

- Overview of Tuning a Physical Standby Database
- Temporary Undo, Global and Session Variables
- The Significance of Tables without Primary Keys
- Statistics on the Logical Standby
- Transaction Consistency
- Adjusting the Number of Applier Processes
- Adjusting the Number of Preparer Processes
- Tune the Memory for the LCR Cache
- Set the ReopenSecs and NetTimeout Database Properties
- Compress Redo Transmission
- Optimize SQL Apply
- Optimize Redo Apply

Session 18: OVERVIEW OF PATCHING AND UPGRADING DATABASES IN A DATA GUARD CONFIGURATION

- Upgrade the Oracle Data Guard Broker Configuration
- Upgrade the Oracle Database in a Data Guard Configuration with a Physical Standby Database
- Upgrade the Oracle Database in a Data Guard Configuration with a Logical Standby Database
- Use DBMS_ROLLING to Upgrade a Database
- Leading Group Databases and Leading Group Master
- Trailing Group Databases and Trailing Group Master
- Use DBMS_ROLLING to Carry out a Rolling Database Upgrade

Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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