

## DB2 9 for LUW Advanced Database Recovery Information

**Length:** 4.0 Days  
**Ref:** CL492G  
**Delivery method:** Classroom  
**Price:** EUR

### Overview

Gain a deeper understanding of the advanced recovery features of DB2 9 for Linux, UNIX, and Windows database environments with single and multiple partition databases. Get practical experience in the planning and utilization of a wide variety of DB2 recovery facilities in a series of database recovery scenarios you complete during lab exercises using DB2 Enterprise 9.7 for Linux.

The purpose of this course is to enable the learning to gain a deeper understanding of the advanced recovery features of DB2 9 for Linux, UNIX, and Windows database environments with single and multiple partition databases. In this course, the learning will receive practical experience in the planning and utilization of a wide variety of DB2 recovery facilities in a series of database recovery scenarios you complete during lab exercises using DB2 Enterprise 9.7 for Linux.

### Public

This advanced course is for experienced database administrators who plan and implement recovery and high availability plans for DB2 9 for Linux, UNIX and Windows databases using single or multiple partition DPF databases. The lab exercises can be performed using a single partition or a multiple partition DPF database using DB2 Enterprise 9.7 for Linux.

This course is appropriate for those using DB2 in a z/Linux environment.

### Prerequisites

You should complete:

- *DB2 9 Database Administration Workshop for Linux, UNIX, and Windows (CL2X2)*
- *DB2 9 Database Administration Workshop for Linux (CL202)* **or**
- *DB2 9 Database Administration Workshop for UNIX (CL212)* **or**
- *DB2 9 Database Administration Workshop for Windows (CL232)* **or**
- *Fast Path to DB2 9 for Experienced Relational DBAs (CL282)* **or**
- *DB2 9 for Linux, UNIX, and Windows Quickstart for Experienced Relational DBAs (CL482)* **or**
- *DB2 9 for LUW Multiple Partition DBA Workshop (CL24)* **or**

- *DB2 9 for LUW Multiple Partition Environment for Single Partition DBAs (CL25)*
- **or** have equivalent experience.

## Objective

- Describe the unique recovery planning requirements for DB2 9 single partition and DPF multiple partition databases
- Explore the DB2 for Linux, UNIX and Windows recovery facilities and database configuration options
- Plan the implementation of automated archival and retrieval of database logs
- Recover a DB2 table following a DROP TABLE command issued in error
- Utilize the REBUILD option of the RESTORE Utility to recover a full or partial database copy using either database or table space backups
- Plan and execute the recovery of table spaces to a selected point in time
- Effectively utilize incremental backup and restore to reduce the size and duration of DB2 database backups
- Describe the database crash recovery processing performed when there is an unplanned outage of a DB2 database server and select database configuration options to minimize the restart time.
- Utilize the redirected restore option to recover DB2 data to alternate disk configurations and invoke the db2relocatedb command to alter the configuration of a DB2 database
- Execute recovery scenarios, including loss of DB2 log data using the DB2 log mirroring option, and configure a database for automatic backups
- Utilize the information in the DB2 recovery history file to plan and execute various DB2 utilities
- Configure a DB2 database to automatically remove recovery objects that are no longer needed, including backups and archived logs
- List the benefits and limitations of disaster recovery alternatives including log shipping to a standby database or using DB2 replication
- Utilize the db2haicu command to select options for the integrated high availability cluster support for DB2 databases
- Explore the options for operation of DB2 databases in high availability environments including the use of a split mirror copy of the database
- Plan, implement, and manage the Primary and Standby databases using the High Availability Disaster Recovery (HADR) facilities of DB2 9 for Linux, UNIX and Windows databases
- Implement Read-Only application access to the Standby database in a HADR environment

## Topics

### **DB2 Database Recovery Review**

- State the three types of recovery support
- Explain the basic principles DB2 uses for database recovery and restart
- Describe the capabilities and functional requirements of DB2 logging
- Select options for some of the DB2 database parameters that support recovery

## **DB2 Recovery Log Management**

- Select the DB2 Database parameters that support the DB2 logs
- Configure the database options to automate archive log management
- Implement infinite active logging to support applications that require large amounts of logged database changes
- Describe the options provided by DB2 9 for Linux, UNIX, and Windows to reduce log volume, including the NOT LOGGED INITIALLY option

## **DB2 Dropped Table Recovery**

- Explain the DB2 facility to recover from an SQL DROP TABLE statement issued in error
- Implement dropped table recovery for selected table spaces
- Use the DB2 LIST HISTORY command to gather the information needed to recover a dropped table
- Plan and invoke the DB2 utilities involved in recovering a dropped table

## **Database Rebuild Support**

- Review the considerations of using standard DB2 database recovery options
- Explain the capabilities of the REBUILD option for the RESTORE command
- List the types of information included in each DB2 backup image and describe how it is used to support rebuilding a database
- Plan for supporting database and disaster recovery scenarios using DB2 database and table space backups using the RESTORE command with a REBUILD option
- Utilize LIST UTILITIES SHOW DETAIL to monitor progress of a RESTORE Utility during database rebuilding

## **Table Space Recovery**

- Plan for point-in-time recovery of a table spaces to support application processing errors
- Explain how the minimum recovery time for a table space may impact application point in time recovery
- Use the ONLINE option for RESTORE and ROLLFORWARD commands to recover selected table spaces with an active database

## **DB2 Incremental Backup and Recovery**

- Plan a database recovery strategy that includes both full and Incremental backups to reduce the duration and size of database backups
- Implement a physical database design to take advantage of Incremental backups of selected table spaces
- Utilize an Incremental restore to recover a DB2 database or table space from Incremental backup images

- Use the LIST UTILITIES command to track the processing of an Incremental backup or restore process

## **DB2 Database Crash Recovery**

- Describe the concepts and processing for DB2 database crash recovery
- Select an appropriate value for SOFTMAX to reduce database crash recovery time
- Configure DB2 database options to support crash recovery for applications
- Describe the impact of a database crash and restart for DB2 Utilities like LOAD, REORG and IMPORT

## **DB2 Database and Table Space Relocation**

- Explain the facility of the DB2 RESTORE command to recover table spaces to different containers
- Use the SET TABLESPACE CONTAINERS command to define new containers during a redirected restore
- Utilize the RESTORE utility to change the database storage paths for AUTOMATIC STORAGE table spaces
- Plan the use of redirected restore as part of a disaster recovery
- Describe two methods that can be used to convert a DMS table space to utilize automatic storage
- Use the GENERATE SCRIPT option of RESTORE to set up a command script for a redirected restore operation
- Copy schemas from one database to another using the TRANSPORT option of the RESTORE utility
- Use db2relocatedb when moving or copying DB2 databases with non-DB2 utilities

## **DB2 Additional Recovery Facilities**

- Explain the LOAD Utility options COPY YES, COPY NO and NONRECOVERABLE impact on database recovery
- Select the appropriate method for protecting the database from loss of log file
- Select the BACKUP Utility option to include the required logs in an online backup image
- Use the DB2 ARCHIVE LOG command to make the current DB2 log available for archival
- Implement the DB2 option for blocking update transactions when the log disk becomes full
- Implement the DB2 Utility Throttle using the UTIL\_IMPACT\_LIM Database Manager configuration option
- Configure a DB2 database for automatic backups
- Explain the self optimizing features of the Backup Utility

## **DB2 Recovery History File**

- Explain the information recorded in the Recovery History file
- Use the DB2 LIST HISTORY command to display selected information needed to plan database

recovery

- Retrieve information from the database recovery history using SQL
- Configure a DB2 database for automatic removal of database recovery objects including backups and archived logs
- Use the PRUNE HISTORY command to remove outdated information in the Recovery History
- Restore a damaged Recovery History file

## **High Availability and Split Mirror Database Copy**

- Describe various techniques for supporting High Availability of DB2 databases
- Explain the concepts involved when implementing the automated failover of a DB2 database
- Describe the integrated cluster configuration and management features of DB2
- Discuss the concepts used by DB2 pureScale to support High Availability for a DB2 database
- Plan for using split mirror copies to create a standby database, a database snapshot or a database mirror
- Utilize the SET WRITE SUSPEND and DBD2INIDB commands with split mirror database copies
- Use the AS SNAPSHOT option of the DB2 BACKUP and RESTORE utilities

## **Basic Database Disaster Recovery Techniques**

- Describe the benefits and limitations of several methods for supporting database disaster recovery
- Explain setup for a Standby database at a remote location
- Plan for database disaster recovery using remotely mirrored disks
- Describe the use of DB2 Replication to recover selected DB2 tables in a remote database

## **DB2 High Availability Disaster Recovery (HADR)**

- Describe the benefits and limitations of implementing High Availability Disaster Recovery (HADR)
- Implement HADR, including the setup of a Primary and Standby database
- Use the commands START HADR, STOP HADR, and TAKEOVER to manage an operational HADR system
- Plan for the use of the DB2 Utilities like LOAD, REORG, Backup and Restore in an HADR environment
- Select appropriate HADR database configuration options in order to meet the requirements of a specific application environment including the HADR\_PEER\_WINDOW
- Monitor the status of the Primary and Standby database using GET SNAPSHOT FOR DATABASE or db2pd - hadr
- Implement Read-only application access to the Standby Database of an HADR database environment

## **DB2 DPF Partitioned Database Recovery Considerations**

- Explain database recovery facilities in a DB2 DPF partitioned database
- Describe the use of the Single System View options for Backup of a partitioned database
- Recover a partitioned database using the TO END OF LOGS option of the ROLLFORWARD command
- Create an online Backup of a DPF partitioned database that includes all of the required active logs
- Implement automated archival of DB2 logs in a DPF partitioned database
- Perform dropped table recovery in a DPF partitioned database
- Use the REBUILD option of RESTORE to build a partial copy of a DPF Partitioned database
- Describe the crash recovery processing performed for a DPF partitioned database
- Explain the use of redirected restores and db2relocatedb with DPF partitioned databases
- Use db2inidb for split mirror copies with a DPF partitioned databases

## Agenda

### Day 1

- Unit 1: DB2 Database Recovery Review
- Exercise 1: Configuring DB2 for Recovery
- Unit 2: DB2 Recovery Log Management
- Exercise 2: Managing DB2 Log Files
- Unit 3: Dropped Table Recovery
- Exercise 3: DB2 Dropped Table Recovery

### Day 2

- Unit 4: Database Rebuild Support
- Exercise 4: Database Rebuild Support
- Unit 5: Table Space Recovery
- Exercise 5: Table Space Point-in-Time Recovery
- Unit 6: Incremental Backup and Recovery
- Exercise 6: Incremental Backup and Restore
- Unit 7: DB2 Database Crash Recovery

### Day 3

- Exercise 7: Database Crash Recovery
- Unit 8: DB2 Database and Table Space Relocation
- Exercise 8: DB2 Table space Relocation
- Unit 9: DB2 Additional Recovery Facilities
- Exercise 9: Additional Recovery Facilities
- Unit 10: DB2 Recovery History File
- Unit 11: High Availability and Split Mirror Database Copy

## Day 4

- Exercise 10: DB2 High Availability using split mirror copies
- Unit 12: Basic Database Disaster Recovery Techniques
- Exercise 11: DB2 Database Disaster Recovery using Log Shipping
- Unit 13: DB2 High Availability Disaster Recovery (HADR)
- Exercise 12: DB2 High Availability Disaster Recovery (HADR)
- Unit 14: DB2 DPF Partitioned Database Recovery

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