



DB3016 - DB2 Administration for LUW Platforms

Course ID#: 0370-229-DB-W

Hours: 35

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Course Content and Pre-Assessment

Course Description:

This course is designed to review the concepts and components of DB2 version 9.5 for LINUX, UNIX and Windows. This course has 3 major sections; basic administration, advanced recovery and performance and tuning. DB2 commands and SQL will be used to focus on DB2 administration activities. The relationships between object components will be presented along with communication and security aspects. Design issues of referential Integrity, table check constraints, user defined data types and functions, triggers and large objects will be reviewed. Program design issues will be considered which effect concurrency, integrity and performance. DB2 administration functions and utilities will be reviewed and applied in workshops. Performance and tuning issues will be reviewed and applied in workshops.

Objectives:

Upon successful completion of this course, the student will be able to:

- Understand the basic concepts and facilities of DB2
- Create instances, databases and relational objects to support application development and user data access
- Understand row compression and range partitioning on tables to improve performance
- Use IMPORT, EXPORT and LOAD utilities to manipulate data
- Perform basic and advanced database and table recovery
- Understand the basic security features of DB2
- Understand and control the locking behavior of DB2 and gather snapshot information for analysis
- Know how the DB2 Optimizer can be influenced to aid performance
- Use performance enhancing techniques for supporting applications
- Use EXPLAIN tools and techniques to improve SQL performance
- Alter the configuration of DB2 to improve performance



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Prerequisites:

Relevant Operating Systems experience (UNIX, LINUX or Windows). Knowledge of relational database theory and SQL is helpful. Previous experience of using DB2 or another relational database is recommended

Topics

Module 1: The DB2 Family

- The DB2 family of products
- DB2 communications options

Module 2: Getting Started with DB2 (INSTANCES)

- The DB2 hierarchy of objects
- TCP/IP Connectivity for DB2
- Instance creation and configuration
- CLP (command line processor) coding options
- The DB2 Administration Server

Module 3: DB2 and GUI

- Administration (GUI) tools
- Configuring a DB2 Client to access remote instances and databases
- Using the Command Editor to run queries or commands
- Using the Control Center to create a database object

Module 4: Creating Databases and Tablespaces

- Know how to create a database
- Create SMS and DMS tablespaces
- List tablespace and container information for a database
- Get tablespace snapshots
- Alter a tablespace and change container sizes
- List and change the database and instance configuration files

- Introduce Automatic storage

Module 5: Creating Tables and Other Objects

- Creating tables and indexes
- Using data types and nullity attributes for columns
- Defining Referential and table Check constraints
- Creating views and nested table expressions
- Introduce row compression
- Identify concepts of range partitioning

Module 6: TRIGGERS, UDT and UDF

- When and how to use DB2 triggers
- Create and code triggers
- When and how to use UDT's
- Define sourced and external UDF
- Define table functions

Module 7: DB2 LOCKING

- How DB2 controls concurrency and integrity for multiple users
- Know the factors effecting data locking
- Use commands to effect the behavior of DB2 locking
- Use monitors to analyze user locking activity
- Review and alter database configuration parameters that effect locking

Module 8: DB2 Security

- How to GRANT privileges



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- Know of administration Authorities in DB2
- How to create tables and other objects for use of groups

Module 9: DB2 Data Management

- Identify logging techniques that DB2 uses
- Basic features of some DB2 Utilities that help manage data
- When to use these utilities

Module 10: IMPORT/EXPORT/LOAD Utilities

- When and how to use IMPORT, EXPORT and LOAD
- Choose options to improve performance
- The effects of using LOAD and how to bring a table to normal status
- Compare LOAD and IMPORT

Module 11: Basic Database Recovery

- When and how to use BACKUP and RECOVERY operations
- Choose a database configuration for “full recovery” after failure
- ROLLFORWARD through the transaction logs to reapply changes to data
- Check the status of a tablespace
- Accomplish point-in-time recovery of a tablespace

Module 12: Disaster Recovery for Tables and Tablespaces

- Complete a redirected restore, to replace lost or changed containers for tablespaces
- Recover from dropped table

Module 13: Incremental Backup and Recovery Techniques

- Why and how to choose an incremental backup activity

- Determine options for database and tablespace recovery, when incremental backup has been used
- Setup for a database for incremental backup Activity

Module 14: Data Access Techniques

- Understand strategies that might be used by the DB2 optimizer
- Know what happens at execute time for specific strategies
- Use the EXPLAIN tools to analyze access strategy

Module 15: The DB2 Optimizer

- Know the impact of optimizer options on performance
- Review multi-table access
- Create indexes with varying options to improve performance
- Create automatic summary tables
- Consider the ways RAID technology may be used
- Use lab activities to analyze and influence SQL performance

Module 16: DB2 Operational Model

- Review the architectural concepts for DB2
- Look at the behavior of DB2, with respect to I/O operations
- Identify important cache and monitoring elements

Module 17: DB2 Configuration Parameters

- Review important configuration parameters for the database and the database manager
- Introduce auto-configuration
- Identify the DB2 Design Advisor