

IBM Db2 Federation Administration: Setup, Security and Performance Tuning

OEM: IBM • Duration: 3 Days (24 hrs) • Code: V010024G

COURSE MODULES & TOPICS

Objectives

- Learn to configure wrappers, servers, and nicknames, and administer user mappings, access control, and federated connections.
- Gain hands-on skills in performance tuning, troubleshooting, and integrating DB2 with external database systems.

Day 1: Setting Up and Managing DB2 Federation

Overview of IBM DB2 Federation Architecture

- Introduction to data federation concepts
- Components of DB2 Federation: Wrappers, Servers, Nicknames, User Mappings
- Supported data sources and interoperability
- Use cases and advantages of federation

Planning and Executing Federated Server Upgrades

- Version compatibility and upgrade paths
- Pre-upgrade considerations and backup strategies
- Steps for upgrading a federated server
- Post-upgrade validation and testing

Configuring Federated Data Sources and Connections

- Creating and configuring wrappers and servers
- Registering and defining remote data sources
- Creating nicknames for remote tables and views
- Setting up user mappings and authentication
- Handling connectivity and driver requirements

Administrative Tasks for Managing Federation Environments

- Monitoring federated connections and sessions
- Managing metadata and statistics for nicknames
- Privileges and access control in a federated setup
- Routine maintenance and troubleshooting tips

Day 2: Developing and Securing Federated Solutions

Designing and Building Federated Database Objects and Queries

- Creating views and aliases on nicknames
- Writing SQL queries using federated tables
- Handling data type mismatches and conversions
- Query examples: joins, subqueries, and unions across data sources
- Limitations and considerations in federated SQL

Monitoring and Enhancing Federation Query Performance

- Understanding query execution plans in federated contexts
- Using EXPLAIN and db2exfmt to analyze performance
- Identifying bottlenecks and performance hotspots
- Pushdown analysis: when and how queries are pushed to the data source
- Indexing and statistics for federated objects

Implementing Security and Access Control in Federated Systems

- Overview of DB2 security model in federation
- Managing user mappings and authentication mechanisms
- Controlling access to remote data sources
- Handling security in multi-user federated environments
- Best practices for secure configuration

Day 3: Advanced Troubleshooting and Integration

Diagnosing and Resolving Federation Issues

- Common errors in federated environments and their causes
- Troubleshooting connection and authentication problems
- Handling data source incompatibilities and SQL limitations
- Using diagnostic logs, error codes, and tracing tools
- Techniques for isolating and resolving query failures

Advanced Performance Tuning for Federated Queries

- Fine-tuning query execution plans
- Reducing data transfer between DB2 and remote sources
- Optimizing join strategies in federated queries
- Leveraging caching and materialized views
- Using optimizer hints and configuration parameters

Integrating DB2 Federation with External Database Systems

- Connecting to popular external databases (Oracle, SQL Server, PostgreSQL, etc.)
- Configuring appropriate wrappers and drivers
- Handling differences in SQL dialects and functions

- Ensuring data consistency and integrity across systems