

Course Lesson Map

PostgreSQL 11 Database Administration

Day 1

- Introduction to PostgreSQL Server and Advance Features
- Postgres Client Server Architecture
- Getting Started
 - Installing the PostgreSQL Server
 - Setting Environment Variables
 - Creating a Cluster
 - Running Server
- Configuring of PostgreSQL Server
 - Connection Settings
 - Security and Authentication
 - Resource Settings
 - WAL
 - Error Reporting and Logging
 - Autovacuum
 - Runtime Statistics, etc.
- Server Control
 - Postgres hosed based access configuration

Day 2

- Client and Tools
 - Introduction To PSQL
 - Commands and Parameters
 - Using graphical administration tools- pgAdmin
- Creating and Managing Databases
 - Object Hierarchy
 - Databases and Schemas
 - Tablespaces
 - Exploring Databases
 - Locating the database server's message log
 - Locating the database's system identifier
 - Listing databases on this database server
 - How much disk space does a table use?
 - Which are my biggest tables?
 - How many rows are there in a table?
 - Quickly estimating the number of rows in a table
 - Understanding object dependencies
- Obtaining Metadata
- Transactions & Concurrency Control

Day 3

- Database Administration
 - Performing actions on many tables

- Writing a script
 - Adding/removing schemas
 - Moving objects between schemas
 - Adding/removing tablespaces
 - Moving objects between tablespaces
 - Using materialized views
- Table Partitioning
- Extensions
 - Accessing objects in other PostgreSQL databases (postgres_fdw, dblink)
 - File_fdw, hstore, pgcrypto, etc.
- Security
 - User Management
 - Superuser
 - Roles and Users
 - Groups and Access Control
 - Ownership, Etc.
 - Preventing Connections
 - Checking secure password
 - Auditing Changes
 - Encrypting Sensitive data
- Monitoring and Diagnosis
 - Real-time viewing using pgAdmin
 - Checking whether a user is connected
 - Checking which queries are running
 - Checking which queries are active or blocked
 - Knowing who is blocking a query
 - Killing a specific session
 - Knowing when a table was last used
 - Usage of disk space by temporary data
 - Understanding why queries slow down
 - Producing a daily summary of log file errors
 - Analyzing the real-time performance of your queries
- Performance and Concurrency
 - Find and Tune Slow Running Queries
 - Collecting regular statistics from pg_stat* views
 - Finding out what makes SQL slow
 - Speeding up queries without rewriting them
 - Discovering why a query is not using an index
 - Forcing a query to use an index

Day 4

- Regular Maintenance
 - Controlling automatic database maintenance
 - Removing issues that cause bloat
 - Identifying and fixing bloated tables and indexes
 - Monitoring and tuning vacuum
 - Updating Table Statistics

- Vacuuming
 - Re-indexing
- Backup and Recovery
 - Planning backups
 - Backup Types
 - Logical
 - Pg_dump
 - Pg_dumpall
 - Physical
 - Standalone hot physical database backup
 - Hot physical backup and continuous archiving
 - PgBaseBackup
 - Restore
 - Pg_restore
 - Recovery to a point in time
 - Restore Physical Backup
 - Recovery of a dropped/damaged table
 - Recovery of a dropped/damaged database
- Moving Data
 - Exporting/Importing Data To/From A Flat File

Day 5

- Replication and Upgrades
 - Replication
 - Replication best practices
 - Streaming Replication
 - Implement Hot Standby
 - Replication Slots
 - Logical Replication
 - Using repmgr
 - Handling Switchover & Failover
 - Upgrading Best Practices
 - Upgrading - minor releases
 - Upgrading - major release(pg_upgrade)
 - Migration from Oracle to Postgres using Ora2PG