

PostgreSQL for Developers

Duration: 3 Days Course Code: PSQLDEV

Overview:

PostgreSQL for Developers Course Overview

English - Please note this course is only available in English.

Nederlands - Let op: deze training is alleen in het Engels beschikbaar.

Français - Veuillez noter que ce cours est uniquement disponible en anglais.

This course covers important basic and intermediate level details for developers interacting with PostgreSQL. Delegates will learn technique

Target Audience:

Who will the Course Benefit?

Anyone who has a working knowledge of PostgreSQL but needs to enhance this to include PL/pgSQL, additional functions, and techniques to monitor and optimise query performance.

Objectives:

- Course Objectives
 - To provide a broader set of PostgreSQL skills for someone who currently has a good working knowledge of PostgreSQL.
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Prerequisites:

- This course assumes a good working knowledge of PostgreSQL SQL. This can be obtained by attendance on the pre-requisite SQL for PostgreSQL course.
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Follow-on-Courses:

Further Learning

- PostgreSQL Administration
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Content:

PostgreSQL for Developers Training Course Course Contents - DAY 1

Course Introduction

- Administration and course materials
- Course structure and agenda
- Delegate and trainer introductions

Session 1: ADVANCED SQL LANGUAGE

- Advanced Datatypes
- Data Type Conversion

Session 2: ENHANCED GROUPING FEATURES

- Revision of aggregate functions and basic GROUP BY and HAVING clauses
- ROLLUP extension
- CUBE extension
- GROUPING function
- GROUPING SETS function

Session 3: ANALYTICAL QUERIES

- Ranking functions
- NTILE and WIDTH_BUCKET functions
- Analytic aggregates
- Windowing functions
- Row and Range specifications
- FIRST_VALUE and LAST_VALUE
- LAG and LEAD functions

Session 4: RECURSIVE QUERIES

- The WITH clause
- Recursive Common Table Expressions

Session 5: REGULAR EXPRESSION SUPPORT

- Match operators and notation
- Repetition operators
- Regular Expression functions
- Sub-expression grouping
- SQL Regular Expressions

Session 6: SERVER PROGRAMMING BASICS

- Extending SQL with Procedural Code
- Basic Elements
- Variables and Constants
- Data Types
- Initialising Variables and Assigning Values
- Using DML Statements in Code
- Generating Output PostgreSQL for Developers Training Course Course Contents - DAY 2

Session 7: PROGRAM LOGIC

- IF THEN ELSIF ELSE Statements
- CASE Statements
- The Basic Loop Construct
- WHILE and FOR Loops
- Nested and Labelled Loops
- The CONTINUE Statement

Session 8: CURSORS

- What is a Cursor?
- Implicit and Explicit Cursors
- Cursor Operations
- Declaring, Opening and Closing Cursors
- Fetching Rows
- Status Checking
- Where current of clause
- Unbound cursors (refcursors)
- The Cursor FOR Loop
- Parameterised Cursors

Session 9: EXCEPTION HANDLING

- Errors and Messages
- The EXCEPTION clause
- System Raised Exceptions
- The RAISE statement
- STRICT option in a SELECT ..INTO
- Programmer Raised Exceptions
- The GET STACKED DIAGNOSTICS command
- Nested and Labelled Blocks
- Scope of Variables and Cursors

Session 10: USER-DEFINED FUNCTIONS

- CREATE FUNCTION statement
- Function parameters
- Functions Returning Void

Session 11: USER-DEFINED PROCEDURES

- CREATE PROCEDURE statement
- Procedure parameters
- Invoke a procedure using CALL
- Definer's and Invoker's rights execution
- ALTER and DROP PROCEDURE statements PostgreSQL for Developers Training Course Course Contents - DAY 3

Session 12: TRIGGERS

- DML Triggers
- The Trigger Function
- The CREATE TRIGGER Statement
- BEFORE, AFTER and INSTEAD OF Triggers
- The OLD and NEW qualifiers
- Errors in Triggers
- DDL and Database Event Triggers
- Managing Triggers
- Privileges to create Triggers

Session 13: TRANSACTIONS AND CONCURRENCY

- Overview of Transaction Processing in PostgreSQL
- Transaction Control
- COMMIT, ROLLBACK and SAVEPOINT statements
- AUTOCOMMIT
- Multi-version Concurrency Control (MVCC)
- Transaction Isolation Levels
- Locking Concepts
- Implicit and Explicit Locking of Tables and Rows
- Possible Causes of Contention
- Deadlocks
- Advisory Locks
- Lock Management Parameters

Session 14: SQL TUNING

- Query Optimization
- Scan Methods
- Join Methods
- Join Order
- Statement Transformation
- Detect Slow Queries
- View Execution Plans using EXPLAIN
- Gather Optimizer Statistics with ANALYZE
- Gather Extended Statistics with CREATE STATISTICS
- Parameters that affect Optimization
- Memory Settings that affect Query Performance
- Overview of declarative Table Partitioning

Session 15: LOADING AND UNLOADING DATA

- Execute a function using PERFORM
- Listing Functions
- ALTER and DROP FUNCTION statements

- Import and Export Operations with COPY
 - Export using the COPY Command
 - Import using the COPY Command
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Further Information:

For More information, or to book your course, please call us on 0800/84.009

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