

## PostgreSQL for Developers

Cursusduur: 3 Dagen    Cursuscode: PSQLDEV

---

### Beschrijving:

#### 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

---

### Doelgroep:

#### 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.

---

### Doelstelling:

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

### Vereiste kennis en vaardigheden:

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

### Vervolg cursussen:

Further Learning

- PostgreSQL Administration
-

## Cursusinhoud:

### 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

---

### Nadere informatie:

Neem voor nadere informatie of boekingen contact op met onze Customer Service Desk 030 - 60 89 444

[info@globalknowledge.nl](mailto:info@globalknowledge.nl)

[www.globalknowledge.com/nl-nl/](http://www.globalknowledge.com/nl-nl/)

Iepenhoeve 5, 3438 MR Nieuwegein