

# Course : PostgreSQL, optimizing your development

Practical course - 3d - 21h00 - Ref. DAV

Price : 1740 € E.T.

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During this training course, you'll apply the latest SQL and PostgreSQL specifications. You'll learn how to manage transactions and administer users and their rights. You'll learn to write stored procedures and triggers (in PL/pgSQL, Perl, C), client programs (in C, Perl, PHP).

## Teaching objectives

At the end of the training, the participant will be able to:

- List the new features of the SQL standard
- Identify the development possibilities offered by PostgreSQL
- Developing applications optimized for PostgreSQL

## Intended audience

This training course is aimed at developers wishing to gain in-depth knowledge of the possibilities offered by PostgreSQL, the database management system.

## Prerequisites

Good knowledge of SQL and PostgreSQL. Experience required.

## Practical details

### Hands-on work

In this course, you'll learn how to query tables containing different types of fields: geometric, table, text...

### Teaching methods

Active pedagogy based on examples, demonstrations, experience sharing, case studies and assessment of learning throughout the course.

## Course schedule

### PARTICIPANTS

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### PREREQUISITES

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### TRAINER QUALIFICATIONS

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

### ASSESSMENT TERMS

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.

Participants also complete a placement test before and after the course to measure the skills they've developed.

## 1 Reminders

- Server and access configuration.
- The command line and graphics client.

### Exercise

Configure server and test psql and pgadmin3 clients.

## 2 Creating databases, schemas and data types

- Choice of template and charset. The search\_path.
- Predefined types (monetary...) and array types.
- User domains and types.
- Definition of new basic types in the C language.

### Exercise

Creating a database with schemas and search\_path.

## 3 Creating tables and views

- Foreign key constraints.
- Inherited tables (EXTENDS). Partitioned tables.
- Indexing. Materialized views.

### Hands-on work

Create tables with foreign keys. Create materialized views.

## 4 Implementing complex queries

- Aggregates, joins and sub-queries.
- WINDOW and PARTITION BY clauses.
- Search in FULL TEXT mode.
- Query analysis with EXPLAIN.

### Exercise

Table browsing. Full-text search. Query analysis.

## 5 Transaction management

- Crossover points. Insulation levels.
- Explicit row and table locks.
- Informative application locks.

### Exercise

Test various isolation modes and line/table locks.

## 6 Managing users, roles and rights

- Users and roles.
- Role inheritance, group organization.
- PUBLIC role. Rights.

### Exercise

User declaration and authentication activation.

## TEACHING AIDS AND TECHNICAL RESOURCES

- The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
- At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
- A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

## TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

## ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at psh-accueil@orsys.fr to review your request and its feasibility.

## 7 Implementing stored procedures

- Procedures written in PL/pgSQL, Perl and C.
- Cursors. Operator definition.
- Setting up triggers.

### Exercise

Define a basic type with associated operator and conversion functions.

Define an aggregation function.

## 8 Customer programming interfaces

- Programming in C, Perl and PHP.
- Retrieve graphical elements from the database.
- Exception handling of SQL transactions.

### Exercise

Creation of a C program for writing/reading a database. Creation of a PHP

Web interface based on PostgreSQL tables.

## Dates and locations

### REMOTE CLASS

2026: 9 Mar., 1 June, 14 Oct.

### PARIS LA DÉFENSE

2026: 9 Mar., 1 June, 14 Oct.