

# Course : PostgreSQL, advanced administration

*Practical course - 3d - 21h00 - Ref. PAA*

*Price : 2040 CHF E.T.*



4,5 / 5

BEST

In this hands-on course, you'll learn advanced administration of a PostgreSQL database: performance evaluation tools and techniques, fine-tuning an instance for greater efficiency, managing connections and using scripts to facilitate operation.



## Teaching objectives

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

- ✓ Deepen your knowledge of PostgreSQL administration
- ✓ Identify optimization techniques
- ✓ Managing connection pools with PostgreSQL
- ✓ Using logs for base monitoring
- ✓ Adapt configuration for better performance

## Intended audience

Database administrators and system administrators.

## Prerequisites

Good knowledge of PostgreSQL administration or knowledge equivalent to that provided by the course "PostgreSQL, administration" (ref. PGA).

## Practical details

### Hands-on work

Discussions, experience sharing, demonstrations, tutorials and case studies.

### Teaching methods

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

## Course schedule

### PARTICIPANTS

Database administrators and system administrators.

### PREREQUISITES

Good knowledge of PostgreSQL administration or knowledge equivalent to that provided by the course "PostgreSQL, administration" (ref. PGA).

### 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 Introducing PostgreSQL

- Brief reminder of PostgreSQL administration.
- Manage multiple instances on the same machine.

### Hands-on work

Creating a PostgreSQL instance.

## 2 Instance creation and administration

- Data directories. Transaction and activity logs.
- Automatic task setup. Volume management.
- Use of storage space.
- Definition of transaction log space.
- Table partitioning. Materialized views.
- Instance administration. Use the system catalog.
- Volume tracking. Connection tracking.
- Transaction tracking.

### Hands-on work

Handling PostgreSQL instance directories. Configuration. Log activation and testing.

## 3 Contributions for the administrator

- pgbench: installation, configuration and use.
- pgstattuple: table and index status.
- pg\_freespacemap: free space status.
- pg\_buffercache: memory status.
- pg\_stat\_statements: information on SQL statements executed.

### Hands-on work

Installing and using extensions, using pgbench.

## 4 Performance and settings (reminders)

- Limit connections.
- Sizing shared memory.
- Sorting and hashing operations.
- Optimize data deletion.
- Optimize transaction log management.
- Refine auto-vacuum with thresholds.

### Hands-on work

Continued performance management, the Vacuum Analysis command.

## 5 Instance supervision

- Activity statistics.
- PgBadger. Analysis of Vacuum activity logs and messages.
- Munin, presentation.

### Hands-on work

Using a PostgreSQL log analyzer to obtain comprehensive reports. Monitoring scripts.

### 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.

## 6 Advanced connection management

- Connection strings, connection attributes, multi-host connections.
- PgBouncer. Pool manager installation and configuration.
- Use cases.
- Definitions of connection pools.

### Hands-on work

Connection pool management.

## 7 Complements (global vision)

- Definition of replication and high availability.
- Introduction to native replication.
- Introduction to automatic weighing.

## Dates and locations

### REMOTE CLASS

2026 : 18 Mar., 22 June, 30 Sep., 30 Nov.