Publication date : 05/15/2024

# Course : PostgreSQL, implementing NoSQL

***Practical course - 3d - 21h - Ref. SQW***
***Price : 1740 € E.T.***

This course introduces PostgreSQL's NoSQL features. With Foreign Data Wrappers, the Postgre server can connect to a third-party data server such as MongoDB, which may be NoSQL. Postgre and Spark can be connected. It is also possible to implement a graph-oriented database under Postgre.

## Teaching objectives

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

- Importing data in JSONB format
- Creating NoSQL Joins
- Implementing MongoDB
- Implementing graph databases
- Understanding the fundamentals of Big Data

## Intended audience

Administrators and developers who want to use PostgreSQL as a NoSQL database.

## Prerequisites

Good knowledge of a programming language. Basic command-line administration skills.

## Course schedule

**PARTICIPANTS**

Administrators and developers who want to use PostgreSQL as a NoSQL database.

**PREREQUISITES**

Good knowledge of a programming language. Basic command-line administration skills.

**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 Introduction and return to traditional databases

- The relational model.
- Transaction and concurrent access management.
- Big data.
- The NoSQL movement.
- The main NoSQL families.
- Value, document and column-oriented keys. Graphs: presentation of PostgreSQL's capabilities.
- Criteria for choosing NoSQL.

**Demonstration**
Comparing traditional databases with NoSQL databases.

## 2 NoSQL storage overview

- NoSQL, the end of normal forms.
- Presentation of the various column, key/value, graph and multimodal databases.
- Serialization schemes and formats.
- XML : DTD and XSLT transformation.
- JSON: Bynary JSON.
- YAML: format and operation.

**Demonstration**
Overview of the different NoSQL databases.

## 3 NoSQL database design

- Introducing MongoDB.
- JSON exploitation.
- JSONB format.
- Data import.
- Indexing.
- NoSQL join.
- PostgreSQL features.

**Hands-on work**
Implementation with MongoDB.

## 4 Le requêtage avancé

- Connection to a NoSQL database via Foreign Data Wrappers.
- Benchmark performance of different NoSQL database servers.

**Hands-on work**
Performance management of various NoSQL database servers

## 5 Big Data tools

- Hadoop and the role of Map Reduce.
- HDFS storage.
- HBase is a column-oriented key/value database.
- Spark/PostgreSQL.
- Performance and deployment.

**Hands-on work**
Retrieving the current database from PostgreSQL using Spark.

**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 Graph-oriented databases

- The principles.
- Implementation in PostgreSQL.

**Hands-on work**
Create graphs to graphically represent and store large data sets.

## Dates and locations

**REMOTE CLASS**
2026 : 24 June, 16 Nov.

**PARIS LA DÉFENSE**
2026 : 24 June, 16 Nov.