

PostgreSQL Administration Basic Course



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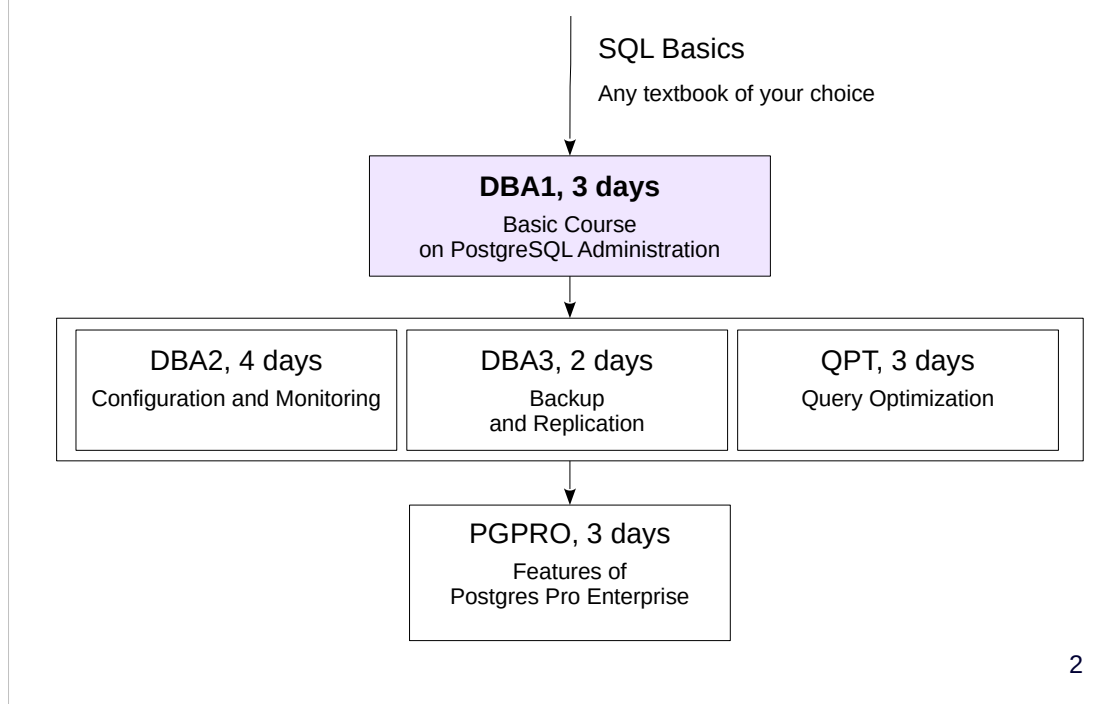
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For Administrators



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Prior knowledge of the basics of the **SQL** language is required to complete all courses. There is no course on the SQL language in our line of courses, but there are many books and other educational resources that can help you master SQL.

For administrators, we offer the following courses.

The **DBA1** basic course provides general information about the PostgreSQL architecture, installation process, basic server configuration and management. It also considers basic administration tasks and provides an overview of access control, backup and replication mechanisms.

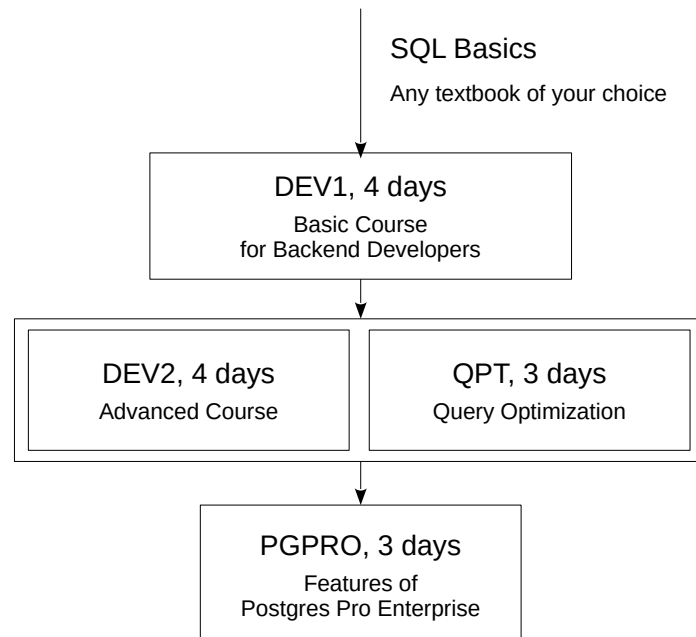
The **DBA2** course focuses on determining appropriate configuration parameters based on an understanding of the internals of the server. It also talks about monitoring the server and using feedback for iterative parameter tweaking.

The **DBA3** course is devoted to backup, as well as physical and logical replication configuration and scenarios for its use. It also provides an overview of the methods and difficulties of building highly accessible, scalable clusters.

The **QPT** course examines in detail the mechanisms for planning and executing queries, discusses the configuration of instance parameters related to performance, and examines the options for finding problematic queries and optimizing them.

The **PGPRO** course discusses additional features provided by the Postgres Pro Enterprise DBMS.

For Backend Developers



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For backend developers, we offer the following courses.

The **DEV1** course is the basic course. It provides general information about the architecture of PostgreSQL and the use of basic database objects; server-side programming in SQL and PL/pgSQL languages using basic data types (including the composite type and arrays), as well as client-side interactions.

The **DEV2** course examines the features of the server's internal structure that affect the development of application code, and comprehensively discusses extensibility: the ability to extend server mechanisms with your own code, which allows you to use PostgreSQL to solve a wide variety of tasks.

The **QPT** and **PGPRO** courses are intended for both developers and administrators.

Developers may also be interested in administration courses if there is a need to study the internal structure of PostgreSQL in more detail, as well as in the case when there is no dedicated administrator role on the project.

<https://postgrespro.com/community/courses>

About the DBA1 Course



Duration: 3 days

Prior knowledge requirements

- Basic knowledge of databases and SQL

- Unix fundamentals

What competences will be acquired

- general information about the PostgreSQL architecture

- installation, basic configuration, server management

- data organization at logical and physical levels

- basic administration tasks

- access control information

- understanding backup and replication

Materials Used



Pre-configured virtual machine

Xubuntu 22.04 OS
PostgreSQL 16
documentation in English

Course handouts

presentations, demonstrations, practice tasks and practice keys
(in html and pdf)
reference materials: Unix commands used in the course,
chart of the main tables of the system catalog with psql commands

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If you are taking the course on your own, start with the Student's Guide. Among other things, it shows where to download and how to use the virtual machine and other materials. All course materials, including the Student's Guide, are available at: <https://postgrespro.com/community/courses/DBA1>

Completing practice tasks is very important to gain the basic skills in working with PostgreSQL. Try to complete the practice tasks yourself first, and then review the provided keys, even if the practice task did not raise questions. Practice keys may contain additional information that is not mentioned in presentations and demonstrations.

Course handouts (presentations, demonstrations, practice tasks and keys) are available in two formats. Html is good for browsing and copying code snippets. Pdf is split in pages and is more convenient for printing.

Additional reference materials will help you quickly find the information you need.

Course Outline and Schedule



Each training day is approximately 6 hours + lunch

Each lesson usually consists of

- presentation and demonstration: ~20-60 minutes

- practice: ~20-30 minutes, including a break

Basic Tools

- 01. Server Installation and Management
- 02. Using psql
- 03. Server Configuration

Architecture

- 04. PostgreSQL Fundamentals
- 05. Isolation and MVCC
- 06. Vacuuming

Architecture (Continued)

07. Buffer Cache and WAL

Data Organization

08. Databases and Schemas

09. System Catalog

10. Tablespaces

11. Low Level

Administration

12. Monitoring

Access Control

13. Overview

Backup

14. Overview

Replication

15. Overview of Physical Replication

16. Overview of Logical Replication