Database Skills Journey

PostgreSQL Server Administration (TTDB7020)

Explore the PostgreSQL Database Server Architecture, Administration, Configuration, Management, Monitoring, Reporting and More

Course Snapshot

- **Course: PostgreSQL Server Administration (TTDB7020)**
- **Duration**: 3 days
- **Audience & Skill-Level**: This introductory-level course is geared for experienced Database Administrators who are managing a PostgreSQL installation.
- **Hands-on:** This hands-on course combines engaging instructor-led presentations and practical demonstrations with machine-based exercises, challenge labs, use case exploration and engaging group activities. Student machines are required.
- **Format**: This course can be delivered for your team or organization **online live (virtual)**, **onsite in-person** or across our robust **blended learning platform (LXP).**
- **Customizable**: This course agenda, topics, labs, hours and delivery modalities can be adjusted to target your specific training skills objectives, tools and learning goals. Please ask for details.

Overview

PostgreSQL is a powerful, open-source, object-relational database system known for being reliable, secure, and flexible. For administrators, learning PostgreSQL equips you with the skills needed to handle complex and high-performance databases in our data-driven world. Big-name companies like Apple, Cisco, Fujitsu, and IBM trust PostgreSQL for their critical applications, which highlights its significance and broad industry adoption. By getting the hang of PostgreSQL, administrators can boost their career opportunities and play a key role in the success of data-focused businesses.

PostgreSQL Server Administration is a three-day hands-on course geared for administrators seeking to sharpen their skills and elevate their database management capabilities. Throughout the course you'll explore a wide range of essential topics, from server architecture and user accounts to monitoring and routine maintenance. Throughout the course, you'll gain invaluable insights and practical techniques that will empower you to optimize, secure, and manage your PostgreSQL environment effectively.

As you navigate through server configuration, database reporting, backup and restore procedures and more, you'll have the opportunity to apply your newfound knowledge to real-world scenarios. By the end of the course, you'll be equipped with the confidence and skillset required to tackle a wide array of administrative challenges and to effectively manage your PostgreSQL databases.

Learning Objectives

This course combines engaging instructor-led presentations and useful demonstrations with valuable hands-on labs and engaging group activities.

Working in a hands-on learning environment led by our expert facilitator you will:

- Gain expertise in managing and maintaining PostgreSQL server architecture, including optimizing performance parameters, memory and disk management, and implementing security best practices.
- Build proficiency in creating, configuring, and securing user accounts by managing roles, privileges, and authentication methods tailored to an administrator's perspective.
- Develop the ability to efficiently monitor database activity, identify performance bottlenecks, and analyze resource usage to ensure optimal database performance.
- Acquire skills in routine database maintenance, such as index and table management, vacuuming and analyzing, and

handling bloat, to keep the PostgreSQL environment healthy and efficient.
- Master backup and restore procedures, including implementing physical and logical backups, point-in-time recovery, and developing disaster recovery plans to ensure data integrity and availability.

If your team requires different topics, additional skills or a custom approach, our team can collaborate with you to further adjust the course to focus on your specific learning objectives and goals.

Audience

The ideal audience for this course includes database administrators, system administrators, IT managers, and DevOps professionals who are responsible for managing and maintaining PostgreSQL database systems. The course is also suitable for individuals transitioning into these roles or seeking to deepen their understanding of PostgreSQL administration, ensuring they are equipped with the necessary skills and knowledge to excel in their careers.

Pre-Requisites

To ensure a smooth learning experience and maximize the benefits of attending this course, you should have the following prerequisite skills:
- Basic understanding of relational database management systems (RDBMS) and their core concepts, such as tables, indexes, and transactions.
- Familiarity with SQL, including the ability to write and execute simple queries, such as SELECT, INSERT, UPDATE, and DELETE statements.
- Working knowledge of command-line interfaces and experience navigating through directories, executing commands, and editing configuration files.
- General knowledge of computer systems and networking concepts, including the fundamentals of operating systems, file systems, and TCP/IP networking.

Take Before: We recommend attendees have the skills in the course listed below, or attend this course as a pre-requisite:
- TTSQL003 Introduction to SQL Querying Basics

Related Courses
This is a subset of related courses we offer. Please see the website for the complete catalog.
- TTDB7020 PostgreSQL Server Administration
- TTDB7023 Advanced PostgreSQL Administration and Performance
- TTDB7024 PostgreSQL for Database Developers
- TTDB7026 Working with PostgreSQL: Hands-on Guide to Robust Database Solutions

Next Steps / Follow-on Courses: We offer a wide variety of follow-on courses for next-level SQL, database, scripting, administration, security and more. Please see our **Database Skills Journeys & Learning Paths** for options based on your specific role and goals.

Course Topics / Agenda

Please note that this list of topics is based on our standard course offering, evolved from typical industry uses and trends. We'll work with you to tune this course and level of coverage to target the skills you need most. Topics, agenda and labs are subject to change, and may adjust during live delivery based on audience skill level, interests and participation.

1. Server Architecture
- Understanding PostgreSQL layers
- Process and memory model
- Storage subsystem overview
- Transaction and locking

2. User Accounts
- Creating user accounts
- Managing roles and privileges
- Authentication methods
- Securing user access

3. Server Startup and Shutdown
- PostgreSQL startup process
- Graceful shutdown techniques
- Crash recovery mechanisms
- Identifying common issues

4. Server Configuration
- Essential configuration files
- Tuning performance parameters
- Memory and disk management
- Security best practices

5. Connections and Authorization
- Connection types and methods
- Managing connection limits
- Role-based access control
- Implementing SSL/TLS

6. Database Reporting
- Query performance analysis
- Identifying slow queries
- Using EXPLAIN and ANALYZE
- Index usage statistics

7. Logs
- Configuring log output
- Analyzing log data
- Log rotation and retention
- Troubleshooting common errors

8. Statistics
- PostgreSQL statistics collector
- Interpreting statistics views
- Monitoring performance metrics
- Detecting anomalies

9. Managing Databases
- Creating and dropping databases
- Managing tablespaces
- Schema management
- Handling large objects

10. Routine Database Maintenance
- Index and table maintenance
- Vacuuming and analyzing
- Managing dead rows
- Handling bloat

11. Backup and Restore
- Physical and logical backups
- Point-in-time recovery
- Backup strategies
- Disaster recovery planning

12. Monitoring Database Activity
- Active session monitoring
- Lock contention analysis
- Identifying long-running queries
- Resource usage tracking

13. Monitoring Disk Usage
- Disk space allocation
- Table and index sizing
- Identifying disk bottlenecks
- Capacity planning

14. Information Schema
- Navigating information schema
- Querying metadata
- Understanding system catalogs
- Exploring object dependencies

15. Wrap Up & Additional Resources
- Recap of key concepts
- PostgreSQL community resources
- Advanced topics exploration
- Continuous practice and learning opportunities

Student Materials & Lab Environment

All course software (limited versions, for course use only), digital courseware files or course notes, labs / data sets and solutions (as applicable) are provided for you in our “easy access / no install required” high-speed remote lab environment. Our tech team works with every student to ensure everyone is set up with solid access and ready to go prior to every course start date, ensuring smooth delivery and great hands-on experience. Please ask for details.

For More Information

For more information about our dedicated skills-focused training services (instructor-led, self-paced or blended), collaborative coaching services, robust Learning Experience Platform (LXP) solutions, Career Experiences, public course schedule, partner programs, courseware licensing options or to see our complete list of course offerings, training solutions and special offers please visit us at **www.triveratech.com**, email **Info@triveratech.com** or call us toll free at **844-475-4559.** Our pricing and services are always satisfaction guaranteed.