

PostgreSQL: Backup - Recovery and Replication

Learn to install, back up, recover and replicate PostgreSQL servers, and configure pgPool-II and pgBouncer for high availability.

9

MODULES

35

TOPICS

COURSE OVERVIEW

This course covers the PostgreSQL server, its client-server architecture and installation, followed by use of the PSQL and pgAdmin clients for local and remote connections. It then addresses backup and recovery, including logical backups with `pg_dump` and `pg_dumpall`, physical backups with `pg_basebackup`, and point-in-time recovery. The course also covers replication, including streaming, warm and logical replication, before turning to pgPool-II for load balancing and high availability and pgBouncer for connection pooling.

WHO THIS COURSE IS FOR

Database Administrators

Database Developers

System Administrators

Backup Administrators

Infrastructure Engineers

LEARNING OBJECTIVES

- Describe PostgreSQL server features and client-server architecture
- Install PostgreSQL server and configure environment variables and clusters
- Use PSQL and pgAdmin to manage databases and queries
- Configure remote client connections using host-based access rules
- Perform logical backups with `pg_dump` and `pg_dumpall` utilities
- Perform physical backups and point-in-time recovery with `pg_basebackup`
- Configure streaming, warm and logical replication between servers
- Configure pgPool-II and pgBouncer for load balancing and pooling

9 Modules, 35 Topics

01

Introduction to PostgreSQL Server

TOPICS

Introduction to PostgreSQL server · Features of PostgreSQL server

02

Postgres Client Server Architecture

TOPICS

Client Server Architecture · Utility Processes · Shared Memory

03

Installation of PostgreSQL Server

TOPICS

Install the PostgreSQL Server · Setting Environment Variables · Creating a Cluster · Running Server

04

PostgreSQL Client

TOPICS

Introduction to PSQL · Meta Commands, SQL queries and Parameters · Using graphical administration tool - pgAdmin

05

Remote Client Connection

TOPICS

Postgres host based access configuration · Remote client connection using pgAdmin

06

Backup and Recovery

TOPICS

- Introduction to Backup and Recovery

TYPES OF BACKUP

- **Logical Backup:** Pg_dump utility
- **Logical Backup:** Pg_dumpall utility
- **Physical Backup:** Pg_basebackup utility - Plain format and compressed format backup

RECOVERY

- Recovering logically backed up objects
- Recovering complete file system using physical backup
- Point In Time Recovery

07

Replication

TOPICS

- Introduction to Replication

TYPES OF REPLICATIONS

- **Physical Replication:** Streaming Replication / Hot Standby - Switching roles of primary and hot standby during failover
- **Physical Replication:** Warm Replication / log shipping
- **Physical Replication:** Synchronous Vs Asynchronous Replication
- **Logical replication:** Publication and subscription model

08

pgPool II

TOPICS

- Pgpool-II Features
- Configuring Pgpool-II with Streaming Replication
- Configuring Pgpool-II for Load Balancing
- Configure Pgpool for PostgreSQL High-Availability

09

pgBouncer

TOPICS

Introduction to connection Pooling · Building pgBouncer setup · Installing and configuring pgBouncer · Connecting to pgBouncer · Settings for performance

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

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