

**PostgreSQL Administration for the Amazon RDS Platform**

**Course Number:** PSQL-106  
**Duration:** 3 days

**Overview**

This on-site or online PostgreSQL Administration for the Amazon RDS Platform training course teaches experienced DBAs how to administer PostgreSQL on the Amazon RDS cloud platform.

**Prerequisites**

All PostgreSQL training attendees must have substantial experience as the administrator of a modern database platform, such as Oracle, SQL Server, or DB2.

**Materials**

All students receive courseware covering the topics in the course.

**Software Needed on Each Student PC**

* Operating system of your choice
* An ssh terminal or client (such as PuTTY) for connection to lab servers provided by Accelebrate
* Modern web browser
* For classes delivered online, all participants need either dual monitors or a separate device logged into the online session so that they can do their work on one screen and watch the instructor on the other. A separate computer connected to a projector or large screen TV would be another way for students to see the instructor's screen simultaneously with working on their own.

**Objectives**

* Understand PostgreSQL architecture on the Amazon RDS platform
* Cluster and scale PostgreSQL on Amazon RDS
* Create and manage databases and users
* Secure PostgreSQL
* Configure PostgreSQL
* Master psql and use it to manipulate database objects and to copy/import data
* Back up and restore your PostgreSQL data
* Replicate your PostgreSQL data
* Understand PostgreSQL internals
* Log, monitor, query, and optimize PostgreSQL using the right tools
* Perform major and minor PostgreSQL upgrades

**Outline**

* PostgreSQL Introduction & Architecture
  + Introduction and History
  + Getting support for PostgreSQL
  + The PostgreSQL community
  + Getting started with PostgreSQL
  + Major differences between self-managed PostgreSQL and RDS
* The PostgreSQL Cluster
  + High-level PostgreSQL architecture
  + Definition of a cluster
  + Review PostgreSQL executables
  + Cluster configuration on RDS
  + RDS Parameter groups
* Creating Databases and Users
  + Templates
  + Creating PostgreSQL Databases
  + Users, Groups, and Roles
  + PostgreSQL role inheritance
* Security
  + Discussion of encryption at rest
  + Discussion of encryption in transit
  + Basic SSL client setup
  + PostgreSQL and TDE
* PostgreSQL Configuration
  + The postgresql.conf file
  + Making persistent configuration changes
  + Using ALTER SYSTEM
  + RDS Parameter groups
* Introduction to psql
  + Connecting the psql client
  + psql command line options
  + psql meta commands
  + psql input and output
* PostgreSQL Database Objects
  + PostgreSQL data type overview
  + Schemas
  + Configuring User-Schema Relationships
  + Schema search path
  + Views and Materialized Views
  + Notes on COMMIT
  + Notes on case sensitivity
* Copying and Importing Data
  + The SQL COPY utility
  + Using the \copy PSQL meta command
  + Exporting data to AWS S3
  + Transporting data between instances (pg\_transport)
* PostgreSQL Backup and Recovery
  + PostgreSQL logical backup
  + Using pg\_dump
  + Using pg\_dumpall
  + Recovery from logical backups
  + Using pg\_restore
* PostgreSQL Streaming Replication
  + Replication in RDS
  + Setting up RDS replicas
* PostgreSQL Internals – System Catalogs and Cluster Settings
  + Overview of system catalogs
  + Overview of system views
  + Querying system catalogs and views
* Logging, Monitoring and Query Performance Tools
  + System log configuration and management
  + Logging SQL queries
  + Logging security events
  + Publishing RDS logs
  + Using pg\_stat\_statements extension for query tuning
  + PostgreSQL stats views
  + Query analysis with EXPLAIN
  + Visualizing EXPLAIN output
* Upgrading PostgreSQL
  + Minor version upgrades
  + Major version upgrades
  + Discussion of data conversion
  + Running a major upgrade in RDS
* Conclusion