

**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