PostgreSQL DBA with Azure

Thank you for contacting our **SQL School,** Training Institute. We assure you 100% Practical, Step by Step Trainings on **PostgreSQL DBA** Training.

Whom are we?

Over 19 Years of strong commitment in training excellence, we assure you 100% practical, step by step learning process paired with Assignments, Use Case Scenarios and Realtime Project Implementations for your Resume and Job Work. We are sure, you will have a wonderful journey with us.

Details of our PostgreSQL DBA Training

What is Postgres?

Postgres is a opensource Platform to store, manage and administer databases.
Very easy and versatile. Easy to manage and operate.

What is PostgreSQL DBA Job Role?

PostgreSQL Database Administrator (DBA) manages, maintains, and optimizes PostgreSQL database systems. **Key Responsibilities include:**

1. **Database Administration**
2. **Performance Tuning**
3. **Backup and Recovery**
4. **DB Security**
5. **Upgrades and Migrations**
6. **Database Design**
7. **Monitoring**
8. **Maintenance**
9. **Troubleshooting**
10. **Azure Cloud Migrations**
11. **Azure Cloud Management**
12. **Azure Cloud Security**
13. **Azure HA DR**
14. **more .. !**

Who can join this course?

1. Existing Other Database Administrators (DBA)
2. Database Developers.
3. System Administrators.
4. Data Analysts/Scientists.
5. IT Professionals.
6. Students.
7. Developers
8. Data Engineers
9. Anyone who wanted to step into / start career in Database Platform

What about the Lab? What are the System Requirements?

Here are the system requirements to install PostgreSQL:

Hardware Requirements:

1. RAM: 8 GB or Higher
2. Storage: 10 GB or more of free disk space

Software Requirements:

Operating System: PostgreSQL supports various operating systems, including:

- Linux (Ubuntu, Red Hat, CentOS, etc.)
- Windows (10, 8, 7, Server 2019, etc.)
- MAC OS (10.12 or later)
- FreeBSD / OpenBSD / Solaris

What about Placement Assistance?

We train you with step-by-step activities, concept wise FAQs and Answers. Resume Guidance and Placement Assistance part of this PostgreSQL DBA Course.

How do I join the course?

Reach us for free demo on +91 9666440801 or visit us on www.sqlschool.com/schedules

Training Options (Plans):

	Modules	Chapters Included	Duration
PostgreSQL DBA Plan A	**1. PostgreSQL DBA**	**Chapters 1 to 30**	**6 Weeks**
PostgreSQL SQL DBA Plan B	**1. PostgreSQL DBA** **2. Azure PostgresSQL DBA**	**Chapters 1 to 45**	**8 Weeks**

Detailed Course Curriculum

Module 1: PostgreSQL DBA

Chapter 1: Introduction to PostgreSQL

- ✓ Overview of PostgreSQL
- ✓ History and Evolution of PostgreSQL
- ✓ Features, Versions and Benefits of PostgreSQL
- ✓ PostgreSQL Architecture

Chapter 2: Installation

- ✓ Installing PostgreSQL on Windows
- ✓ Installing PostgreSQL on Linux using Yum repository and RPM
- ✓ Installing PostgreSQL on Linux using Source Code
- ✓ Installing PostgreSQL on Linux using Contrib Module

Chapter 3: Configuration File & Directory Layout

- ✓ Data Directory
- ✓ Configuration Files (postgresql.conf, pg_hba.conf, pg_ident.conf)
- ✓ Other Physical Files
- ✓ Database Directory Layout
- ✓ Base Directory

Chapter 4: Database Cluster

- ✓ PostgreSQL Cluster (Initdb, Start/Stop/Restart/Reload)
- ✓ Start and stop using systemctl.
- ✓ PostgreSQL Cluster Demo on Windows
- ✓ PostgreSQL Cluster Demo on Linux

Chapter 5: Process & Memory Architecture

- ✓ Postmaster Process
- ✓ Utility Processes
- ✓ Memory Segments & Memory Components

Chapter 6: Create Objects (Database/User/Schema) and Privileges

- ✓ Create/Drop Database
- ✓ Create/Drop User
- ✓ Create/Drop Schema and Search Schema Path
- ✓ Grant/Revoke Privileges on Database Objects

Chapter 7: Tools (psql & pgAdmin) and catalog

- ✓ Using psql command line interface (CLI)
- ✓ pgAdmin(GUI) : Practical Use

- ✓ **g_catalog : Realtime Usage**
- ✓ **Information_Schema & Medata Audits**

Chapter 8: CRUD Operations

- ✓ **CRUD Introduction**
- ✓ **Create Table, Data Types, Constraints, Functions and Operators**
- ✓ **Retrieve Data in PostgreSQL**
- ✓ **Update Records in a Table**
- ✓ **Delete Records in a Table**
- ✓ **Truncate**

Chapter 9: Tablespaces

- ✓ **Tablespace Introduction**
- ✓ **Default Tablespace (pg_default & pg_global)**
- ✓ **Local & Global Tablespaces**
- ✓ **Create/Drop Tablespaces**
- ✓ **Temporary Tablespace**

Chapter 10: Backup and Restore

- ✓ **Introduction to PostgreSQL Backups**
- ✓ **Backup using pg_dump and psql utilities**
- ✓ **Restore using pg_restore and psql utilities**
- ✓ **Offline Backups**
- ✓ **Online Backups**
- ✓ **pg_basebackup utility**

Chapter 11: Advanced Backup & Restore

- ✓ **pgBackRest**
- ✓ **Point-In-Time-Recovery (PITR)**

Chapter 12. MVCC (Multi-Version Concurrency Control) in PostgreSQL

- ✓ **What is MVCC in PostgreSQL?**
- ✓ **How does MVCC work in PostgreSQL?**
- ✓ **Key Data Structures in MVCC**
- ✓ **Benefits of MVCC in PostgreSQL**
- ✓ **Transaction ID Wraparound**

Chapter 13. Database Maintenance, Vacuum and Analyze

- ✓ **Introduction to Maintenance**
- ✓ **Vacuum**
- ✓ **Analyze**
- ✓ **Statistics**
- ✓ **Clustering**
- ✓ **Auto-Vacuum**

Chapter 14: Joins and Constraints

- ✓ **Introduction on Joins and Constraints**
- ✓ **Join Types (Inner, Equi and Outer)**
- ✓ **Constraints (Primary Key, Unique, Foreign Key and NOT NULL etc...)**
- ✓ **SERIAL Column**
- ✓ **ER Diagram**

Chapter 15: Indexing and Types

- ✓ **Introduction to Indexes**
- ✓ **Basic Index Types (B-Tree, Hash and Function/Expression)**
- ✓ **Advanced Index Types (GiST, SP-GiST, GIN and BRIN).**

Chapter 16: Performance Tuning – Part 1

- ✓ **Database Tuning (Vacuum, Analyze, Partitioning etc...)**
- ✓ **Query Tuning (EXPLAIN, ANALYZE, Indexing, Optimize JOINs, Optimize Subqueries)**

Chapter 17: Performance Tuning – Part 2

- ✓ **Configuration Tuning (shared_buffers, effective_cache_size, work_mem, maintenance_work_mem and etc...)**
- ✓ **Monitoring and Maintenance (pg_stat_statements and pg_stat_user_tables).**
- ✓ **Hardware Tuning (CPU, Memory, Storage and Network)**

Chapter 18: Data Loading

- ✓ **Moving, Copying, Export, Import, copy etc...**
- ✓ **pgloader**
- ✓ **Foreign Data Wrappers (FDW)**

Chapter 19: Extensions

- ✓ **What are Extensions in PostgreSQL?**
- ✓ **Types of Extensions in PostgreSQL.**
- ✓ **Examples of Extensions in PostgreSQL.**
- ✓ **How to Install/Uninstall Extensions in PostgreSQL.**

Chapter 20: High Availability and Replication

- ✓ **High Availability Architecture**
- ✓ **Master/Primary and Slave/Standby**
- ✓ **HA step-by-step configuration using Streaming Replication**
- ✓ **Manual Failover and Switchover**
- ✓ **promote command**

Chapter 21-22: Advanced -1 High Availability Concepts

- ✓ **HA step-by-step setup using Streaming Replication**
- ✓ **HA step-by-step using Logical Replication**

- ✓ **Automatic Failover & Switchover**

Chapter 23-24: Advanced -2 High Availability Tools and Software

- ✓ **pgpool: A PostgreSQL-specific connection pooling and replication tool**
- ✓ **repmgr: A tool for managing PostgreSQL replication clusters**
- ✓ **Patroni: A PostgreSQL-specific high availability tool that provides automated failover and switchover**

Chapter 25-26: PostgreSQL HA and disaster recovery (DR) strategies

- ✓ **Introduction to disaster recovery (DR)**
- ✓ **High Availability Strategies (Master-Slave, Master-Master, Multi-Master)**
- ✓ **Disaster Recovery Strategies (PITR, Backup and Restore and Replication)**
- ✓ **Tools and Software required for DR**

Chapter 27: Performance Tuning Using Server Parameters and Partitioning.

- ✓ **Introduction to Server Parameters**
- ✓ **Tune Server Parameters**
- ✓ **Partitioning**

Chapter 28: Migration to PostgreSQL.

- ✓ **Manual Migration**
- ✓ **Using pg_dump and pg_restore**
- ✓ **Using Database Migration Tools**
- ✓ **Using Third-Party Tools**

Chapter 29: upgrade PostgreSQL

- ✓ **Upgrade Methods**
- ✓ **Minor version upgrades**
- ✓ **Major version upgrades**
- ✓ **Common Issues and Solutions**

Chapter 30: Monitoring and Reports

- ✓ **Monitoring using Grafana**
- ✓ **Monitoring using pg_stat_statments**
- ✓ **pgBadger**

Module 2: Azure PostgreSQL DBA

Chapter 31: Azure Cloud Introduction and Fundamentals

- ✓ **Cloud Fundamentals**
- ✓ **Cloud Concepts, Benefits**
- ✓ **IaaS, PaaS, SaaS Cloud Types**

- ✓ **Azure Cloud Concepts**
- ✓ **Azure Resources & Usage**
- ✓ **Azure Services & Purpose**
- ✓ **Azure Account & Subscription**

Chapter 32: Benefits of Running PostgreSQL in Azure

- ✓ **Scalability**
- ✓ **High Availability**
- ✓ **Security**
- ✓ **Cost-Effective**

Chapter 32: Azure PostgreSQL Options

- ✓ **PostgreSQL database on Azure Virtual Machines**
- ✓ **Fully Managed Azure Database for PostgreSQL**
- ✓ **Azure Kubernetes Service (AKS)**

Chapter 33: Create Objects and CRUD operations in AZURE

- ✓ **Create/Drop Databases**
- ✓ **Create/Drop Users**
- ✓ **Create/Drop Tables**
- ✓ **SELECT, INSERT, UPDATE, DELETE and TRUNCATE**

Chapter 34: PostgreSQL DB Migrations in AZURE

- ✓ **Azure Database Migration Service (DMS)**
- ✓ **Azure Data Factory (ADF)**
- ✓ **pg_dump and pg_restore**
- ✓ **Azure Database for PostgreSQL Migration Tool**
- ✓ **Third-party tools**

Chapter 35: Backup and Automated Backup in AZURE

- ✓ **36.1. Backup Options in Azure for PostgreSQL**
- ✓ **36.2. Automated Backup Options in Azure for PostgreSQL**
- ✓ **36.3. Configuring Automated Backups in Azure for PostgreSQL**
- ✓ **36.4. Best Practices for Backing up PostgreSQL Databases in Azure**

Chapter 36: Restore a Backup in AZURE

- ✓ **Restore Options in Azure for PostgreSQL**
- ✓ **Restoring a Database using Backup Restore**
- ✓ **Restoring a Database using pg_restore**
- ✓ **Restoring a Database using Point-in-Time Restore (PITR)**
- ✓ **Best Practices for Restoring PostgreSQL Databases in Azure**

Chapter 37: Performance Tuning of PostgreSQL database in AZURE

- ✓ **Azure-Specific Performance Tuning**

- ✓ **PostgreSQL Configuration Tuning**
- ✓ **Query Optimization**
- ✓ **Monitoring and Maintenance**

Chapter 38: PostgreSQL HA in AZURE

- ✓ **HA Architectures**
- ✓ **Azure Native HA Options**
- ✓ **Third-Party HA Options**
- ✓ **Best Practices**

Chapter 39: PostgreSQL disaster recovery (DR) in Azure

- ✓ **Disaster Recovery Options**
- ✓ **Disaster Recovery Strategies**
- ✓ **Azure Services for Disaster Recovery**
- ✓ **Best Practices**

Chapter 40: Realtime Project

- ✓ **Project Requirements**
- ✓ **Project Solution**
- ✓ **Project FAQs**
- ✓ **Resume Guidance**
- ✓ **More.. !**

This PostgreSQL DBA Course is 100% Practical, Step by Step. Reach us now!

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Trainer: Mr. Srinivas / Mr. Guna Shekar

We assure you:

- ✓ **Step-by-step Classes**
- ✓ **100% Hands-On**
- ✓ **Detailed Scenarios**
- ✓ **Real-Time Projects**
- ✓ **1:1 Resume Guidance**

All sessions are practical, step by step. Kindly ensure on-time practice for best results. Thank You !