Installation & Deployment Document: Influencer - Marketing Analysis System

1. Introduction

1.1 Purpose

This document defines the deployment strategy for the Social Media Influencer Marketing Analysis System. The purpose is to ensure that the developed system is launched into the live environment reliably, scalably, and securely, and to guarantee uninterrupted system operation.

1.2 Scope

This deployment plan covers version management, environments, CI/CD processes, rollback strategy, monitoring, and security measures. It also includes a detailed explanation of the manual database loading steps.

1.3 Target Audience

- DevOps Engineers
- System Administrators
- Developers
- QA Engineers

2. Deployment Architecture

2.1 Infrastructure Overview

- **Cloud Provider:** Azure
- **Compute Services:** Docker
- **Database:** PostgreSQL (Managed Service)
- **Storage:** S3
- **Caching:** Redis
- **Load Balancing:** Elastic Load Balancer (ELB) / Nginx
- **Monitoring & Logging:** Grafana

2.2 Deployment Environments

Environment	Purpose	Platform
Development	Continuous development/	Local / Cloud
Staging	Testing before production	Cloud Staging Server
Production	Live system for real users	Cloud Production Server

3. Deployment Process and Installation

3.1 Continuous Integration & Deployment (CI/CD)

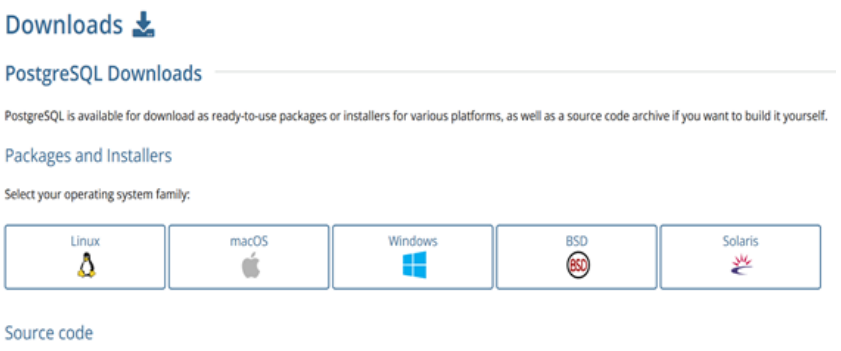
Tools Used: GitHub Actions

Steps:
1. Code is pushed to GitHub.
2. Automated tests are run.
3. Docker images are built.
4. Deployment is made to the test environment.
5. Transition is made to the production environment.

3.2 Database Installation

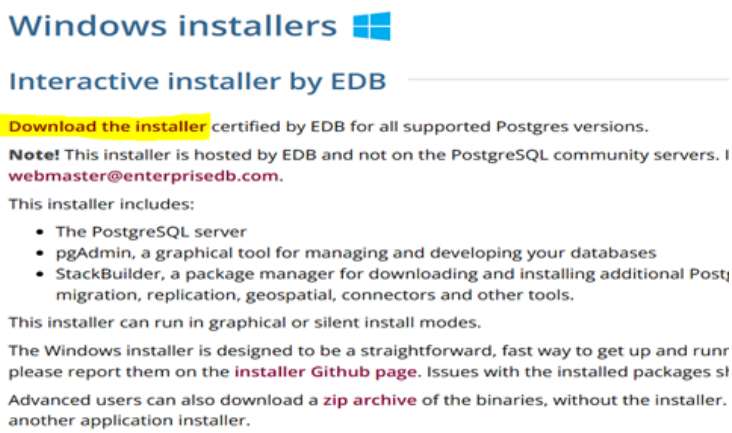
1. Downloading PostgreSQL

1. Go to the official PostgreSQL site by holding the Ctrl key on the keyboard and left-clicking on the following line:
https://www.postgresql.org/download/

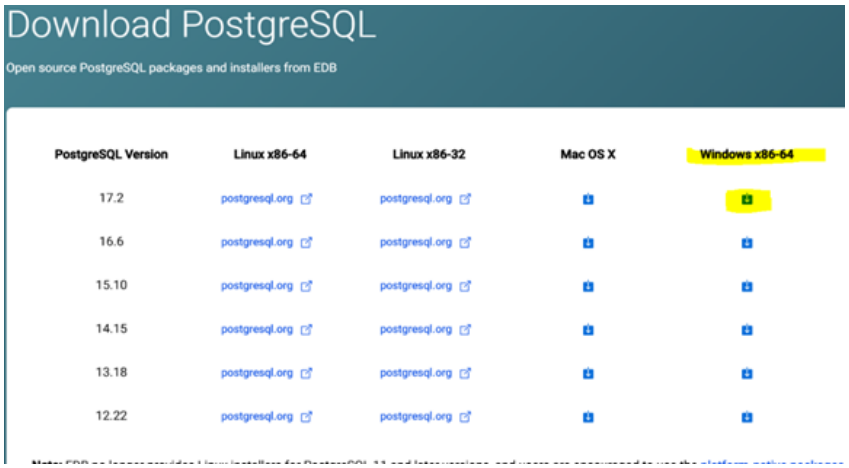


2. Click on the “Windows” option as shown.

3. On the page that opens, click the “Download the installer” link.

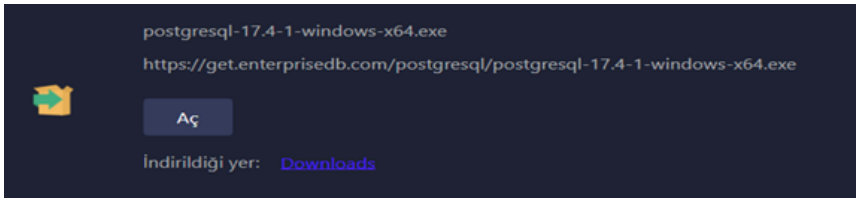


4. Download the latest version for Windows from the redirected page.

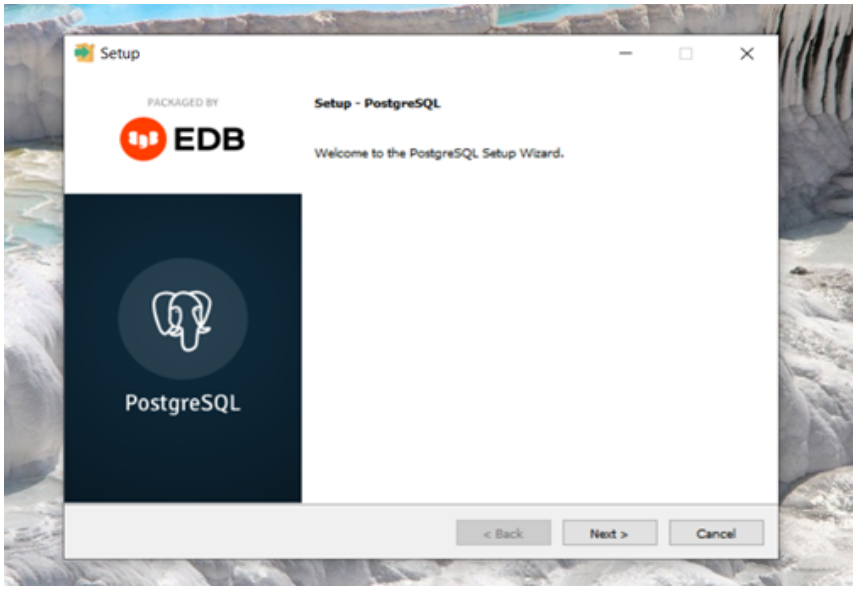


2. Installing PostgreSQL

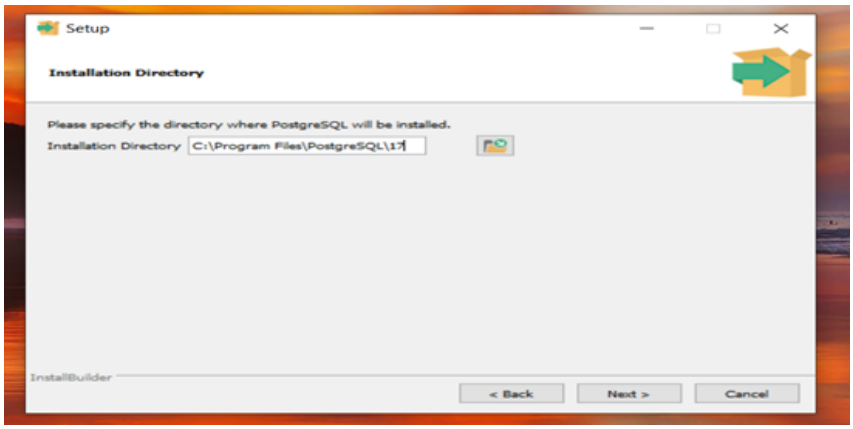
1. Run the downloaded .exe file by clicking the “Open” button.



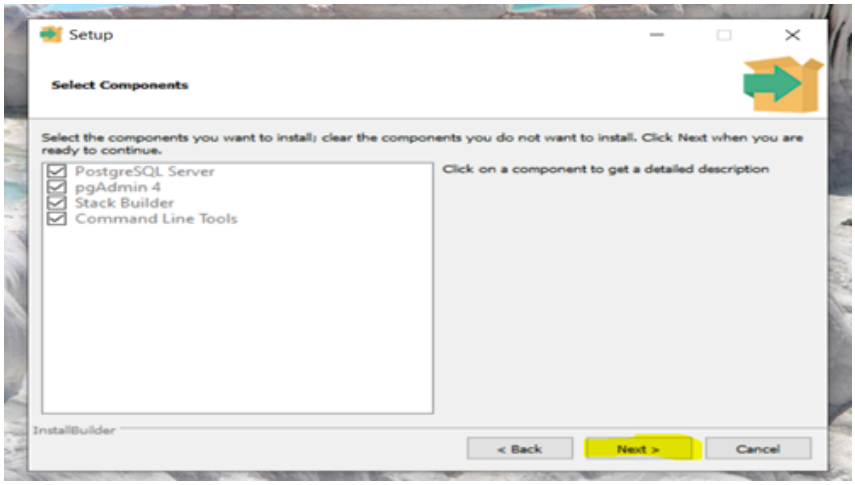
2. In the setup wizard that opens, click the “Next” button.



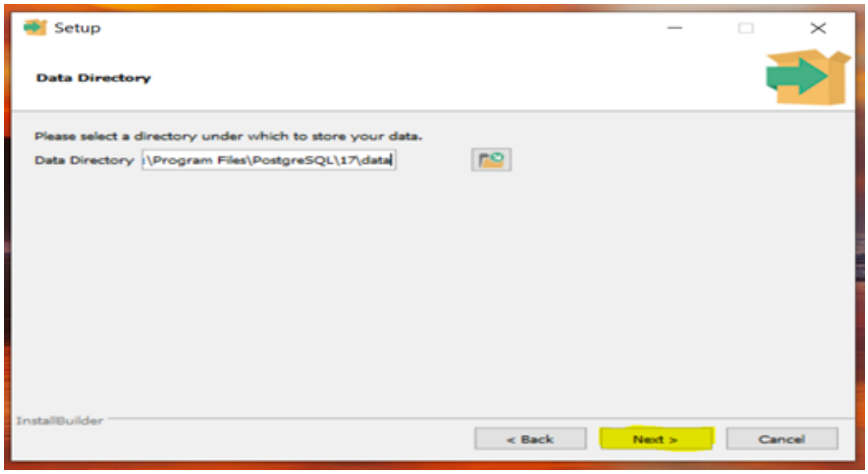
3. Select the installation directory (Default: C:\Program Files\PostgreSQL<version>). Click the “Next” button.



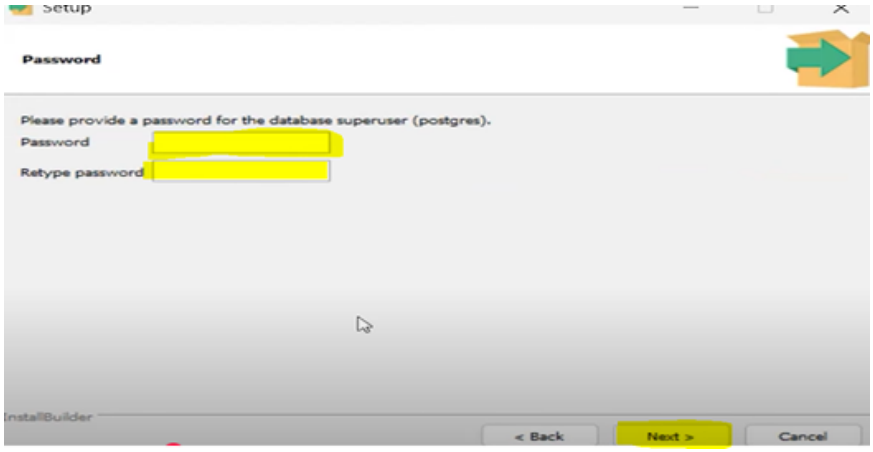
4. Select the components to install: Without changing the default settings, click the “Next” button.



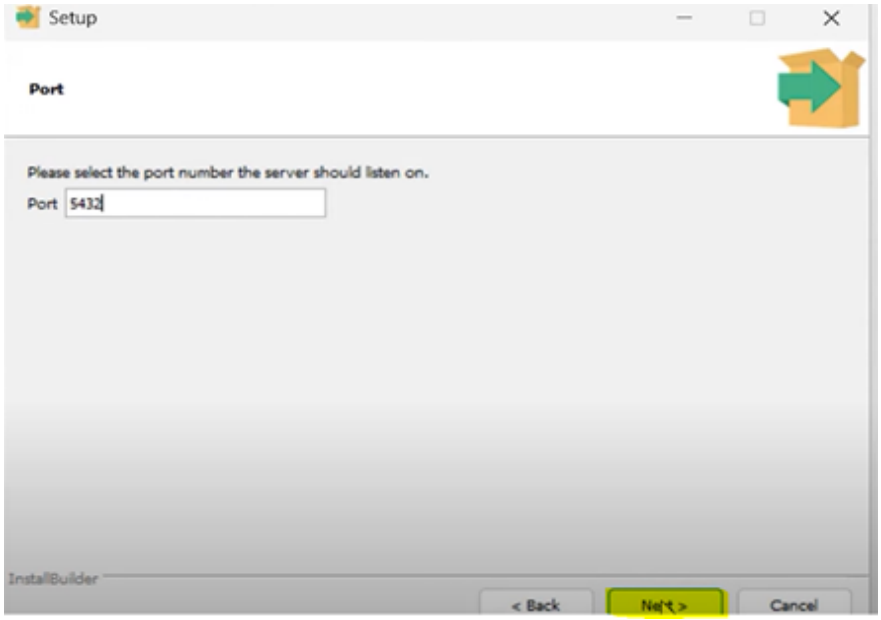
5. Select the data directory (Default: C:\Program Files\PostgreSQL<version>\data). Click the “Next” button.



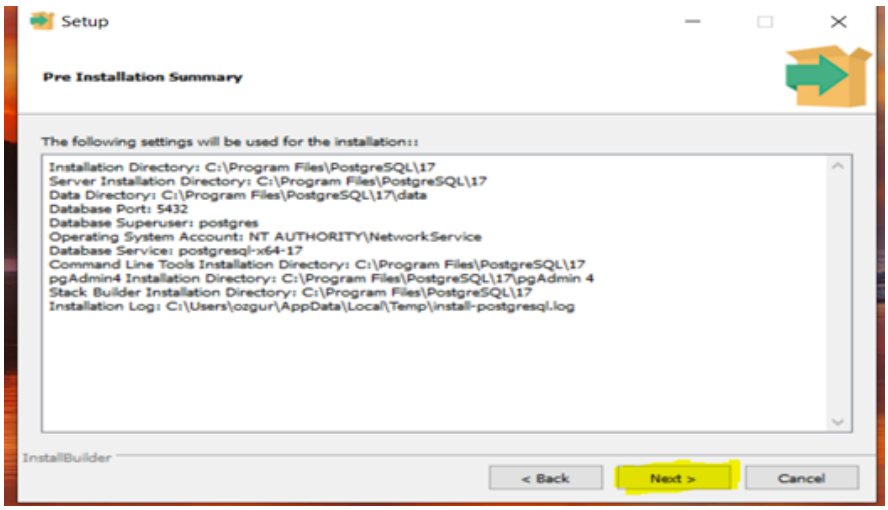
6. Set a password for PostgreSQL and confirm it. Click the “Next” button.



7. Leave the default port number as 5432 and click the “Next” button.

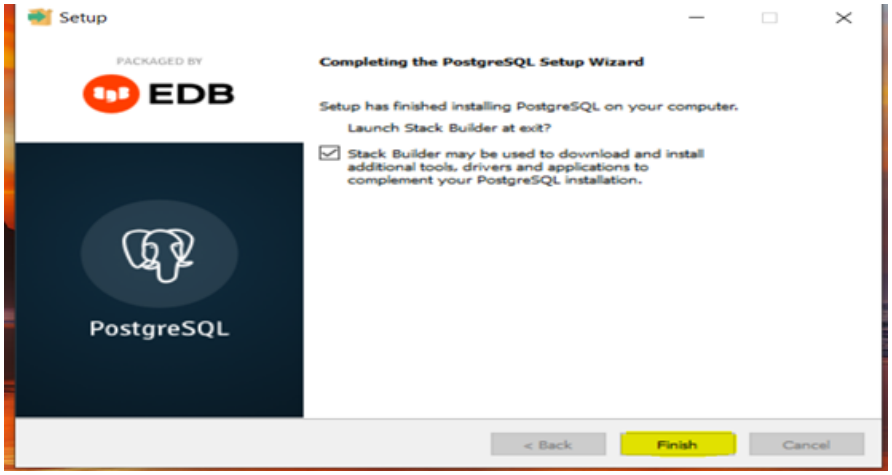


8. On the pre-installation summary, click the “Next” button.



9. In the “Ready to install” section, click the “Next” button again.

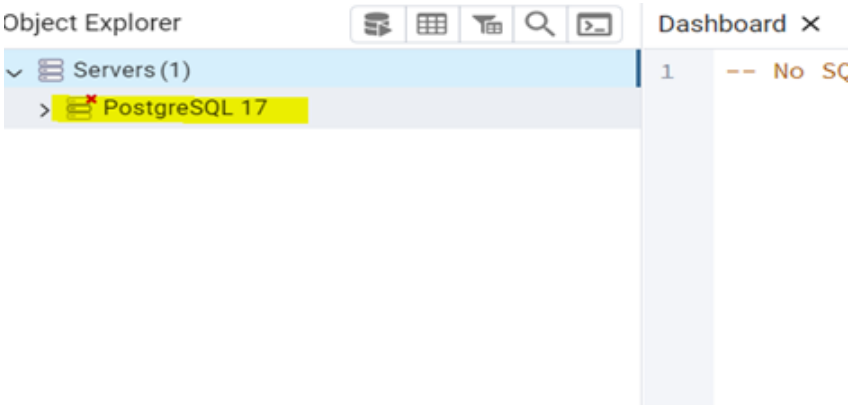
10. After the installation is complete, click the “Finish” button.



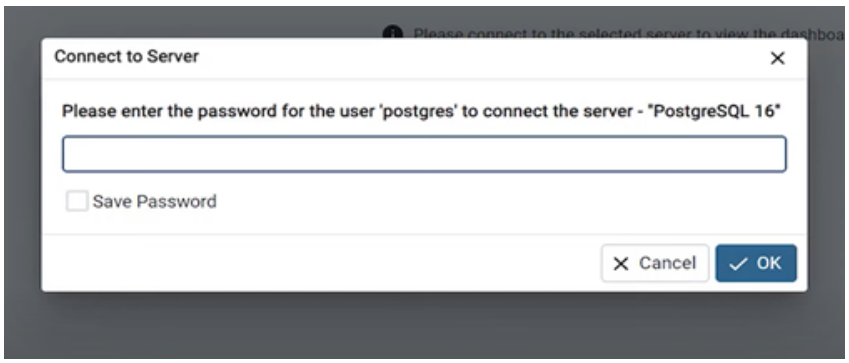
3. Using PostgreSQL with pgAdmin

1. Search for and open pgAdmin 4 from the Start menu.

2. Click the “Servers” tab at the top left.



3. Enter the password you set to connect to the PostgreSQL server and click the “OK” button.



You can now manage your PostgreSQL database and create new databases.

3.3 Rollback Strategy

- **Database Backups:** Backups are taken before deployment.
- **Feature Flags:** Faulty features can be disabled.
- **Version Management:** Easy switch to the previous version.

4. Monitoring & Logging

4.1 Monitoring Tools

- **Application Performance:** New Relic / Datadog
- **Infrastructure Monitoring:** Grafana
- **Error Tracking:** Sentry

4.2 Logging Framework

- **Centralized Logging:** ELK Stack (Logstash & Kibana)

5. Security Considerations

5.1 Authentication & Authorization

- JWT-based authentication.
- Role-based access control (RBAC)

5.2 Data Protection

- **Data Encryption:** Data encryption with AES-256.
- **Security Scanning:** Regular security scans are performed.

5.3 DDoS Protection

- Cloudflare
- Rate limiting on API endpoints

6. Backup & Disaster Recovery Plan

6.1 Backup Strategy

- **Database Backups:** Daily full backups.
- **File Storage Backups:** Weekly backups.

6.2 Disaster Recovery Plan

- **Backup Servers:** Backup servers are operated in two different regions.
- **Recovery Time Objective (RTO):** Less than 15 minutes.
- **Recovery Point Objective (RPO):** Less than 5 minutes.

7. Conclusion

This deployment plan provides a secure, scalable, and reliable deployment process for the Social Media Influencer Marketing Analysis System. The plan guarantees the uninterrupted operation of the system through CI/CD processes automated with GitHub Actions, strong security measures, effective monitoring and logging mechanisms, robust deployment strategies, and flexible rollback methods. In addition, the sustainability and high availability of the system are ensured with the defined infrastructure solutions and disaster recovery plan, and the database installation is described in detail.