Instructions to the students
BSCCS2001:DBMS

Contents

1 Introduction

This document contains important information regarding the DBMS course. We will keep updating this document with additional inputs as and when needed. We strongly recommend that you read this document carefully.

2 PostgreSQL

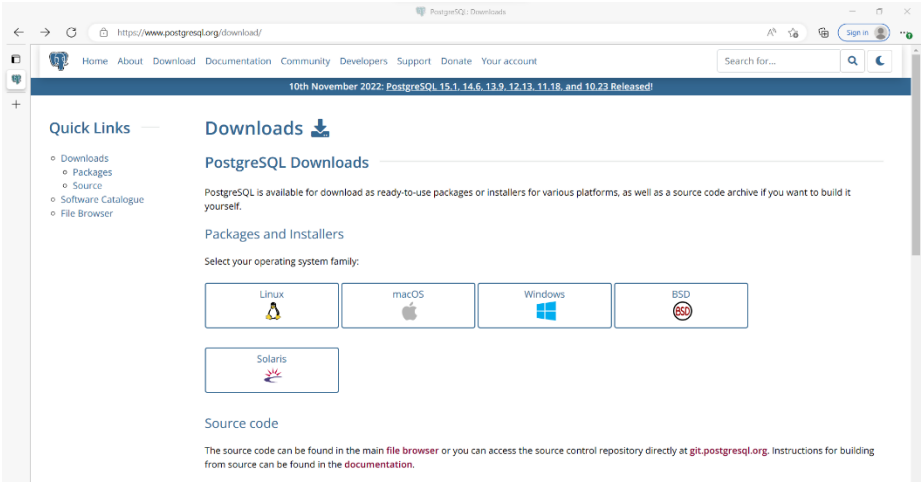
In this course, we use the PostgreSQL database considering many factors including open source licensing (https://opensource.org/licenses/postgresql) and the popularity of the database (https://db-engines.com/en/ranking). The version that we will be using is PostgreSQL v14.

2.1 Local Installation

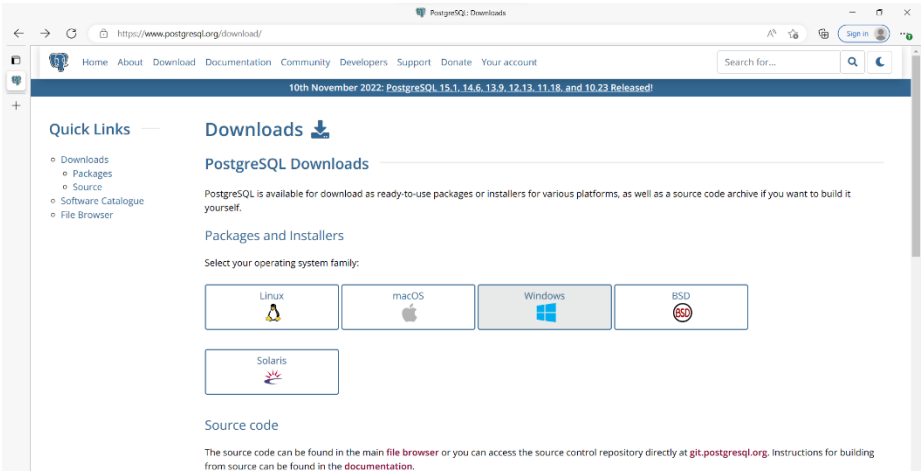
We request you all to install PostgreSQL v14 (recommended) in your local machine. Please find the downloads at https://www.postgresql.org/ download/. For Windows users, please go through the installation instructions given below.

Installing PostgreSQL in Windows 10

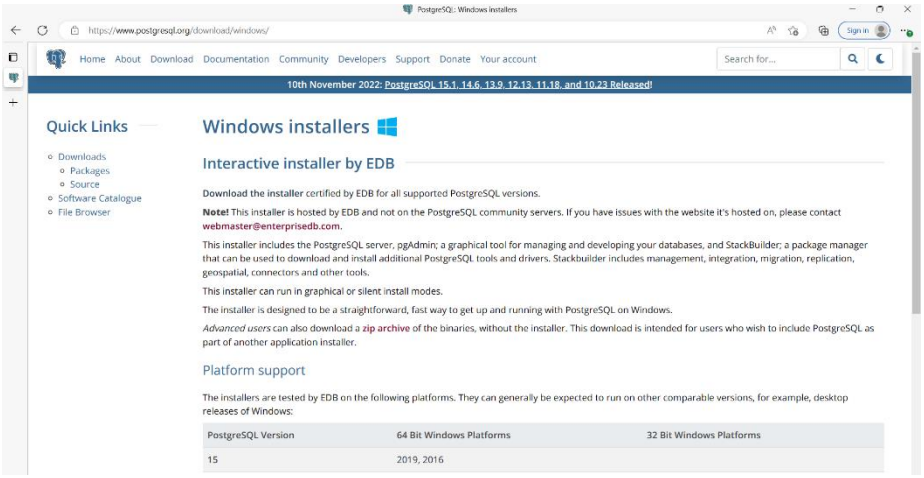
1. Go to: https://www.postgresql.org/download/



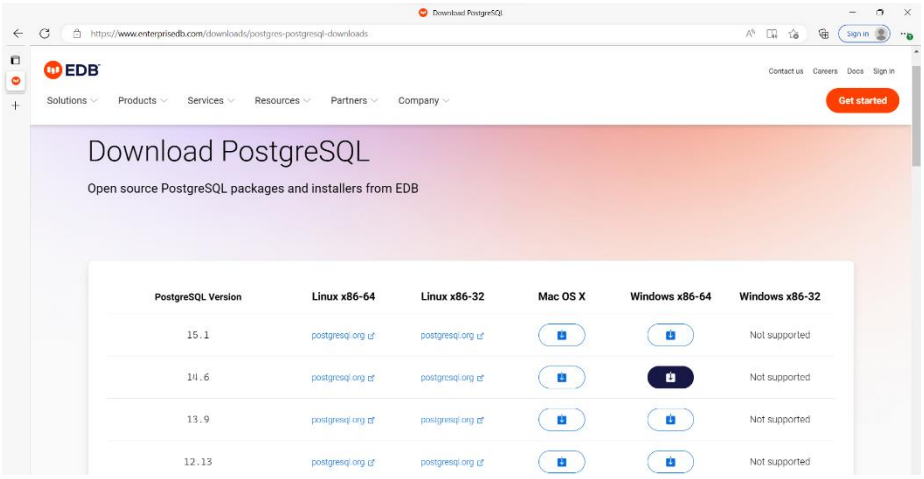
2. Click on Windows.



3. Then, you will be taken to the page as shown below:



4. Click on *Download the installer*, and you will see the page shown below:

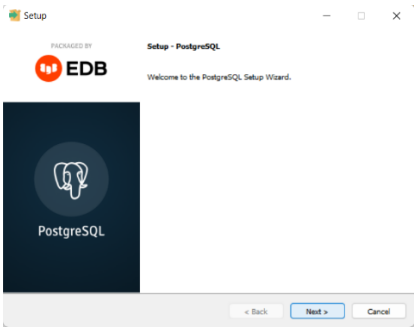


5. Click the download button for PostgreSQL 14.6, Windows x86-64 (or Windows x86-32, based on the architecture).
   Note: For demo, we will be installing PostgreSQL v14.6. You can install v14.

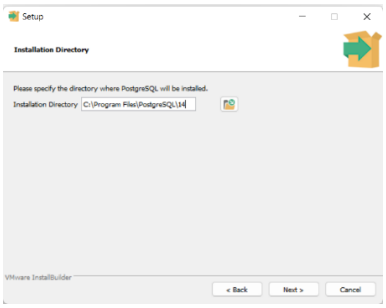
6. Save the postgresql-14.6-2-windows-x64.exe in a folder.

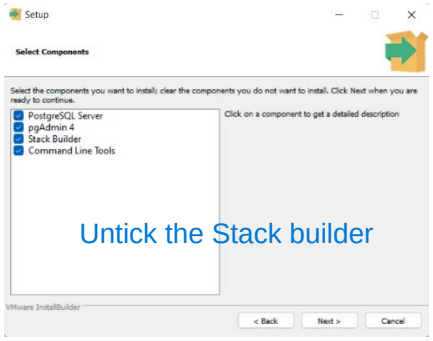
7. Double-click the .exe file to proceed with the installation.

8. Follow the instructions on the screen. The below screenshots provide a guideline.

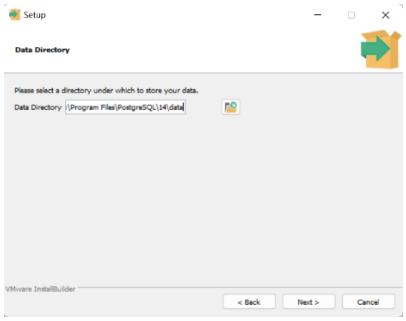

Setup
Setup - PostgreSQL
Welcome to the PostgreSQL Setup Wizard.
PostgreSQL
< Back
Next >
Cancel

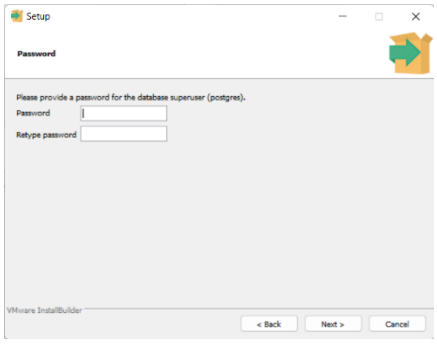
⇒


Setup
Installation Directory
Please specify the directory where PostgreSQL will be installed.
Installation Directory
VMware InstallBuilder
< Back
Next >
Cancel

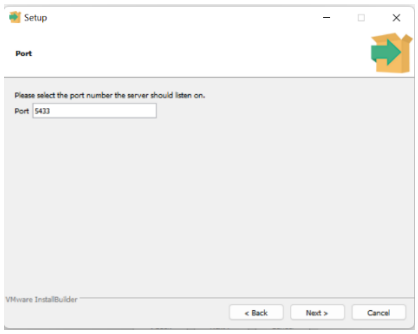

Setup
Select Components
Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.
PostgreSQL Server
pgAdmin 4
Stack Builder
Command Line Tools
Click on a component to get a detailed description
Untick the Stack builder
VMware InstallBuilder
< Back
Next >
Cancel

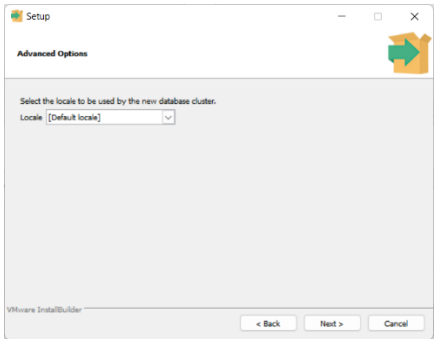
⇒


Setup
Data Directory
Please select a directory under which to store your data.
Data Directory
VMware InstallBuilder
< Back
Next >
Cancel

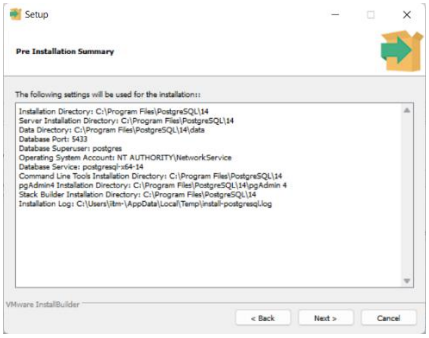

Setup
Password
Please provide a password for the database superuser (postgres).
Password
Retype password
VMware InstallBuilder
< Back
Next >
Cancel

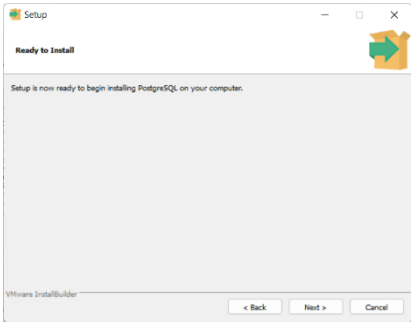
⇒

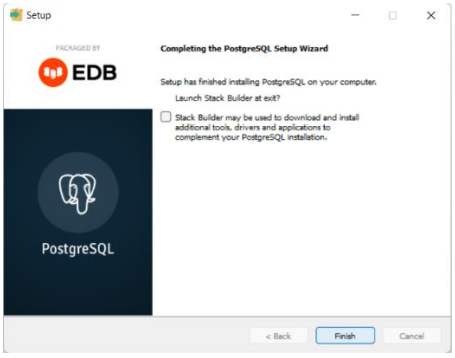

Setup
Port
Please select the port number the server should listen on.
Port
5433
VMware InstallBuilder
< Back
Next >
Cancel


Setup
Advanced Options
Select the locale to be used by the new database cluster.
Locale
[Default locale]
VMware InstallBuilder
< Back
Next >
Cancel

⇒


Setup
Pre Installation Summary
The following settings will be used for the installation:
Installation Directory: C:\Program Files\PostgreSQL\14
Server Installation Directory: C:\Program Files\PostgreSQL\14
Data Directory: C:\Program Files\PostgreSQL\14\data
Database Port: 5433
Database Superuser: postgres
Operating System Account: NT AUTHORITY\NetworkService
Database Service: postgresql-x64-14
Command Line Tools Installation Directory: C:\Program Files\PostgreSQL\14
pgAdmin4 Installation Directory: C:\Program Files\PostgreSQL\14\pgAdmin 4
Stack Builder Installation Directory: C:\Program Files\PostgreSQL\14
Installation Log: C:\Users\ibm-\AppData\Local\Temp\install-postgresql.log
VMware InstallBuilder
< Back
Next >
Cancel





Installing PostgreSQL in Ubuntu and macOS

For installation of PostgreSQL in Ubuntu, please follow the instructions in https://www.postgresql.org/download/linux/ubuntu/
OR
https://phoenixnap.com/kb/how-to-install-postgresql-on-ubuntu

For installing PostgreSQL in macOS, please follow the instructions in:
https://www.postgresql.org/download/macosx/
OR
https://www.postgresqltutorial.com/install-postgresql-macos/

Once the database server is installed, you can access the server using the SQL Shell (PSQL) or the GUI Interface provided by pgAdmin (https://www.pgadmin.org/).

2.2 Online database hosting

Although we strongly recommend that you install the PostgreSQL DB locally, there are many PostgreSQL database hosting platforms on which you can host your database for free. Some examples are:

- Heroku (https://www.heroku.com/postgres)
- ElephantSQL (https://www.elephantsql.com/)
- HelioHost (https://www.heliohost.org/)
- AmazonRDS (https://aws.amazon.com/rds/postgresql/)

Detailed help on configuring your database is available on the respective webpages. We may be unable to give you guidance on each such service, understandably, from a practical perspective. Once you host the database in any

of these platforms, you may access it via your local installation, or you could use front end tools like PopSQL (https://popsql.com/) or DBeaver (https://dbeaver.io/).

3 Live Sessions

3.1 Activity Sessions/Practice Sessions

In these sessions, we will address questions from Activity and Practice Assignments. There will be questions for which detailed solutions have not been provided in the solution document. We will pose such questions as 'Solve With the Instructor' questions and lead you through solving those. We request your cooperation in having familiarized yourself with the questions, before coming for the session so that we can make the best utilization of the 2 hours.

3.2 Open Sessions/Solve With Instructor Sessions

You are free to ask any questions from the week, except from the graded assignments whose submission deadlines are not yet over.

3.3 Revision Sessions

These will be planned as and when required.

4 Query-based Questions

4.1 Mode of submission of solution

As mentioned during the orientation sessions, for specific weeks from Week 2 onwards, we are planning to have query-based questions. We will provide databases as .tar files for you to load into your working database server. Detailed instructions on how to load the .tar files are provided in a PDF in the Additional Resources folder. There will be questions for which you have to write a query as the answer. For practice questions, you can get feedback on clicking *Test Run* button. The graded questions will be auto evaluated once the submission deadline is over.

Important: It is mandatory to submit the practice query-based questions in order for your graded query-based submissions to be considered for evaluation.
This is to ensure you are familiar with the working of the portal for the query based questions.

5 Datasets

We are going to use two database schemas for the query-based questions. The .tar files and .sql files for these databases are available under **Datasets** on the portal. The details about the table structures (the database schema) are also given in detail.