

Chapter I – Install PostgreSQL on Window

1.1 Downloading

The first step is to download the PostgreSQL base software

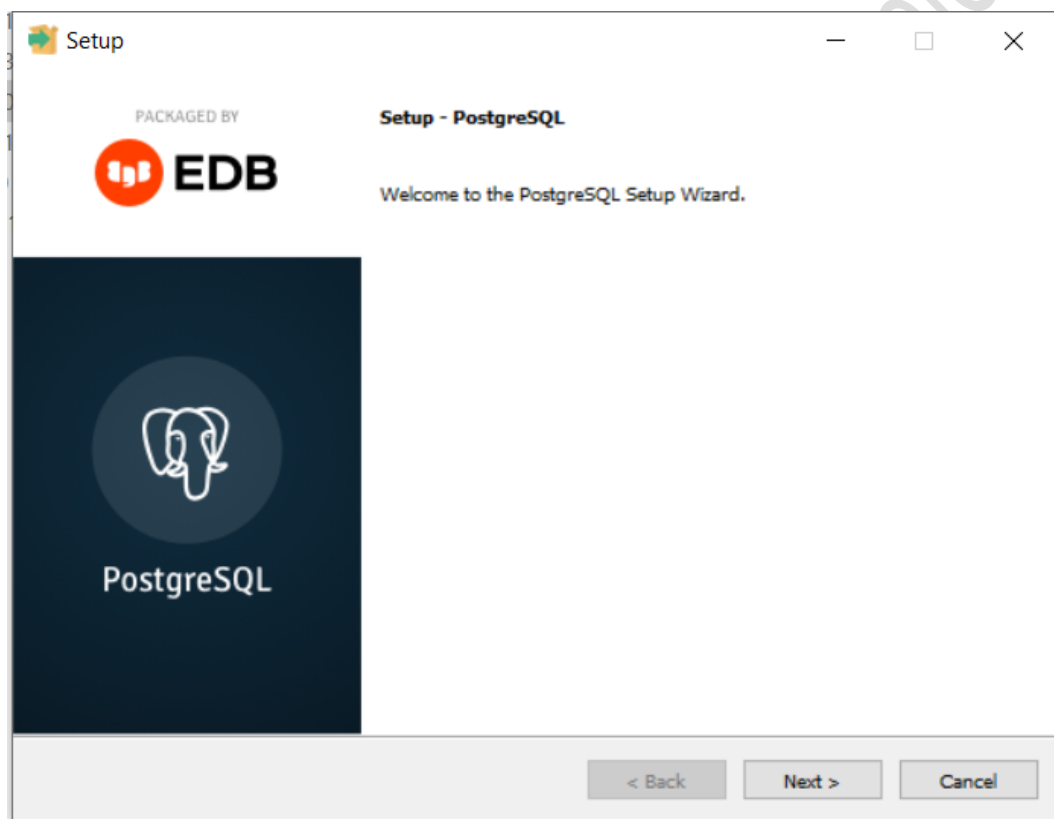
At this link <https://www.enterprisedb.com/downloads/postgres-postgresql-downloads> you will find windows and linux PostgreSQL installers from EDB.

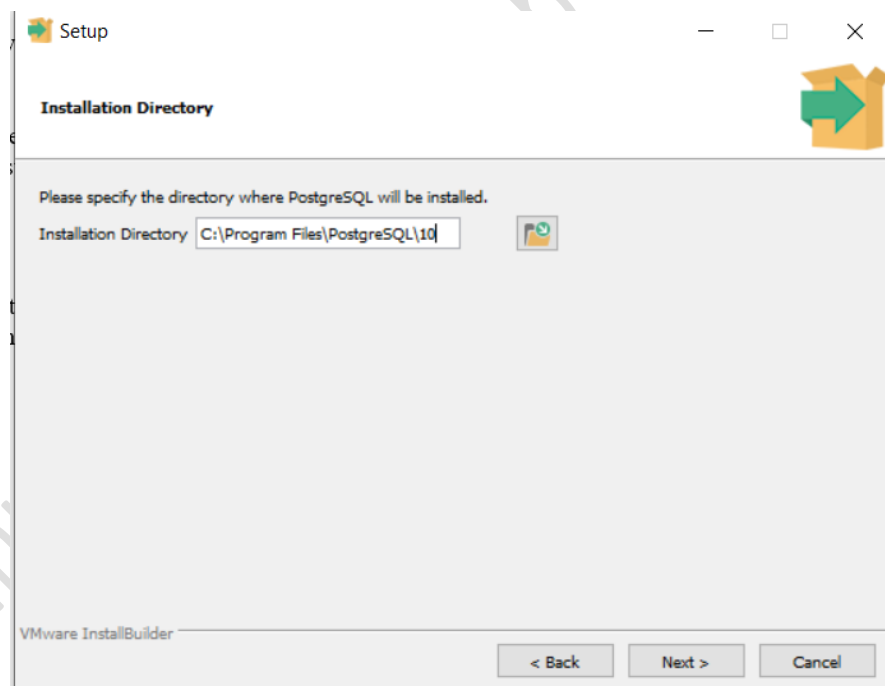
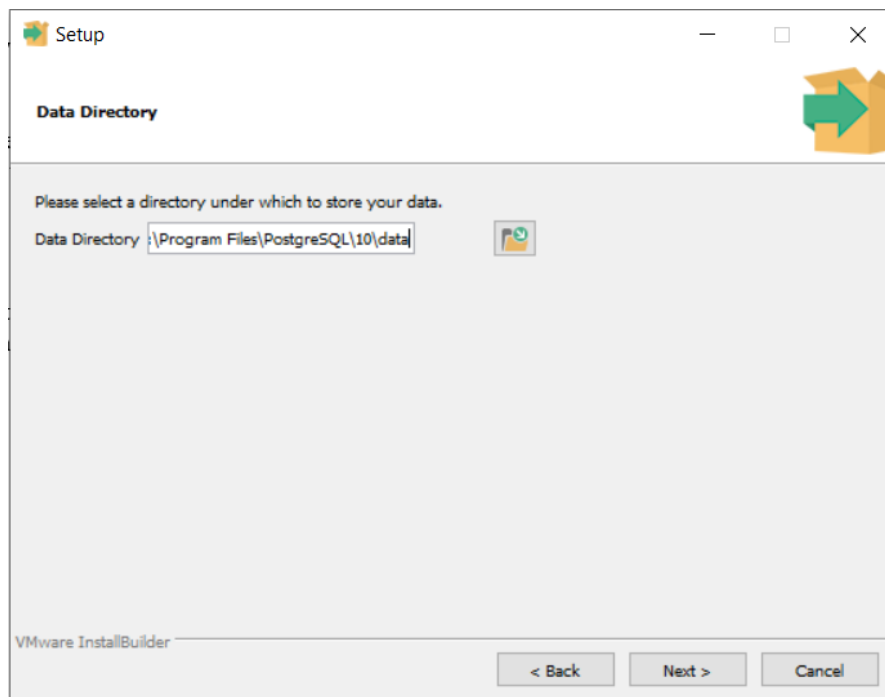
Choose the that refers to the operation system that you have.

1.2 Installing

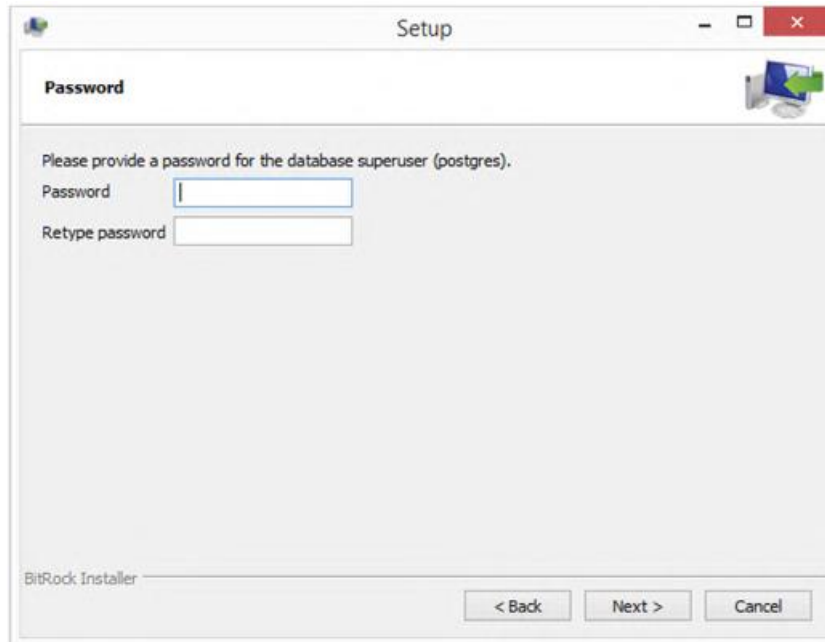
let's install

Launch exe to install PostgreSQL, double click the exe installer file and press next



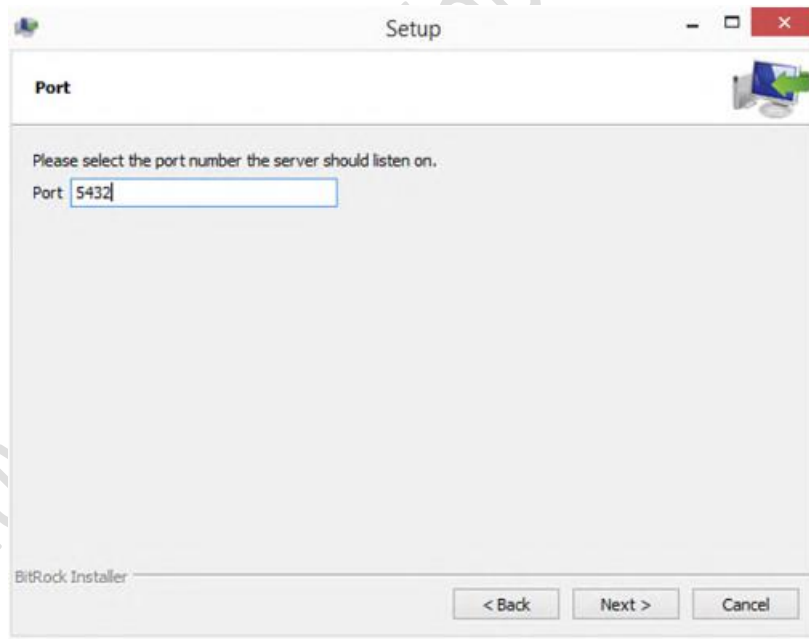


Next step provides a password, so you can use easy to remember.



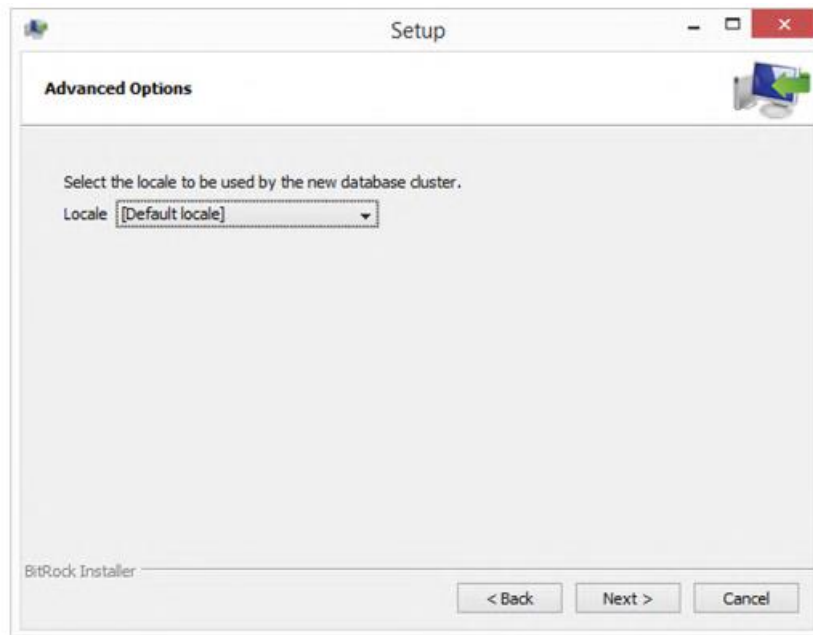
The screenshot shows a window titled "Setup" with a "Password" tab. The window contains the text "Please provide a password for the database superuser (postgres)." followed by two input fields: "Password" and "Retype password". At the bottom, there are three buttons: "< Back", "Next >", and "Cancel". The "BitRock Installer" logo is visible in the bottom left corner.

Next step, keep the port as default.

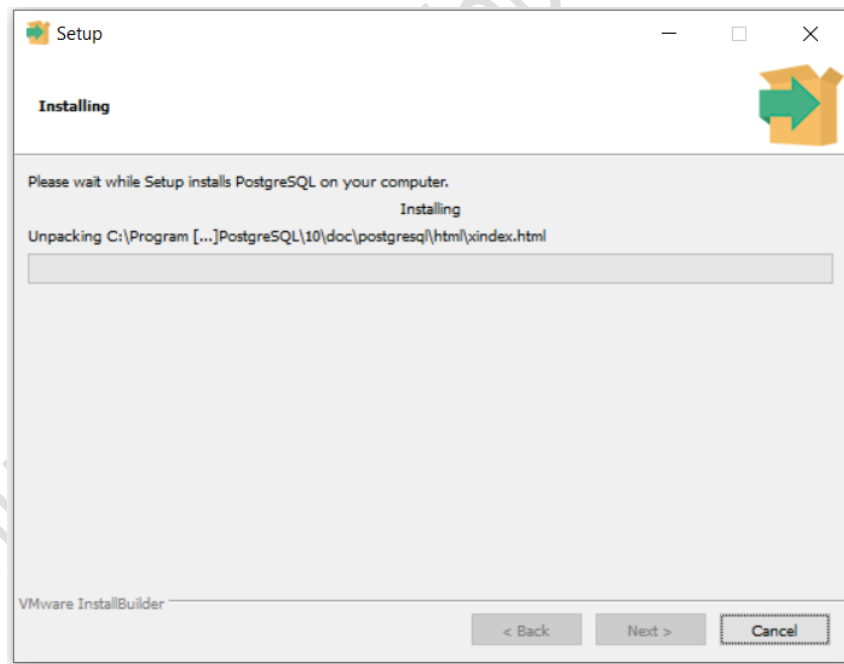


The screenshot shows a window titled "Setup" with a "Port" tab. The window contains the text "Please select the port number the server should listen on." followed by a single input field labeled "Port" containing the value "5432". At the bottom, there are three buttons: "< Back", "Next >", and "Cancel". The "BitRock Installer" logo is visible in the bottom left corner.

Leave it default and click next.

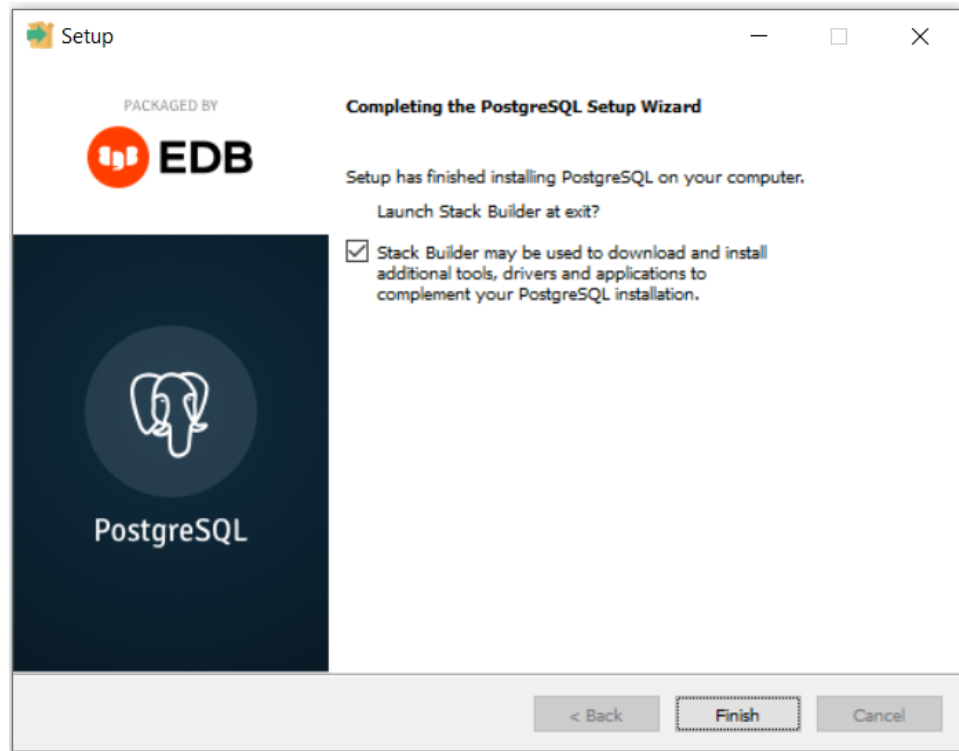


Now PostgreSQL software is installing this may takes a few minutes.

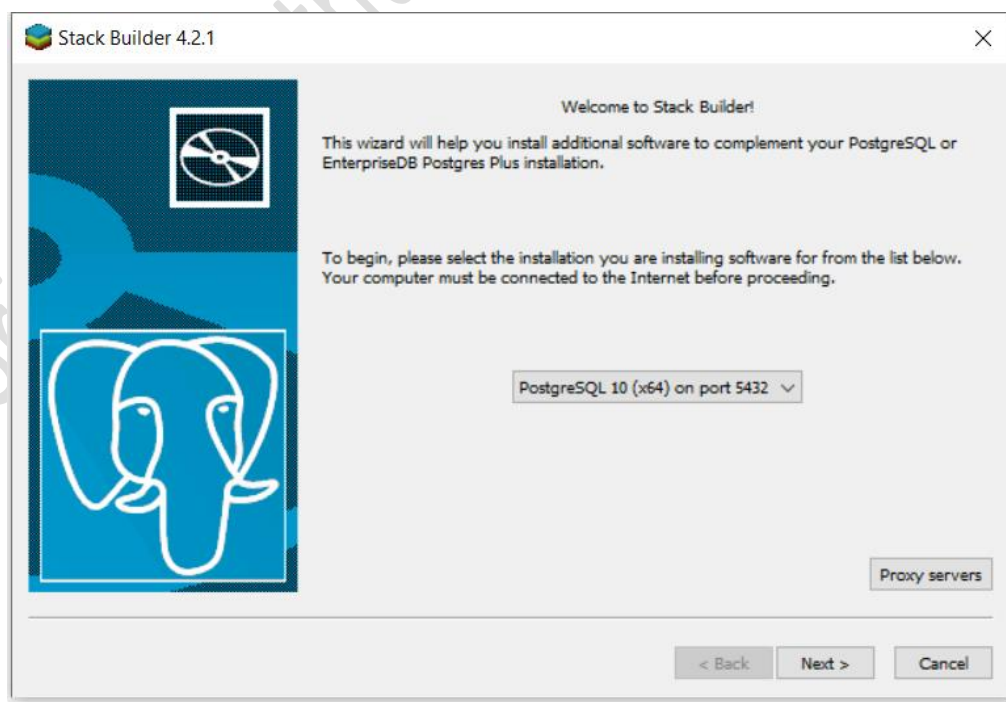


Chapter II – Stack Builder setup

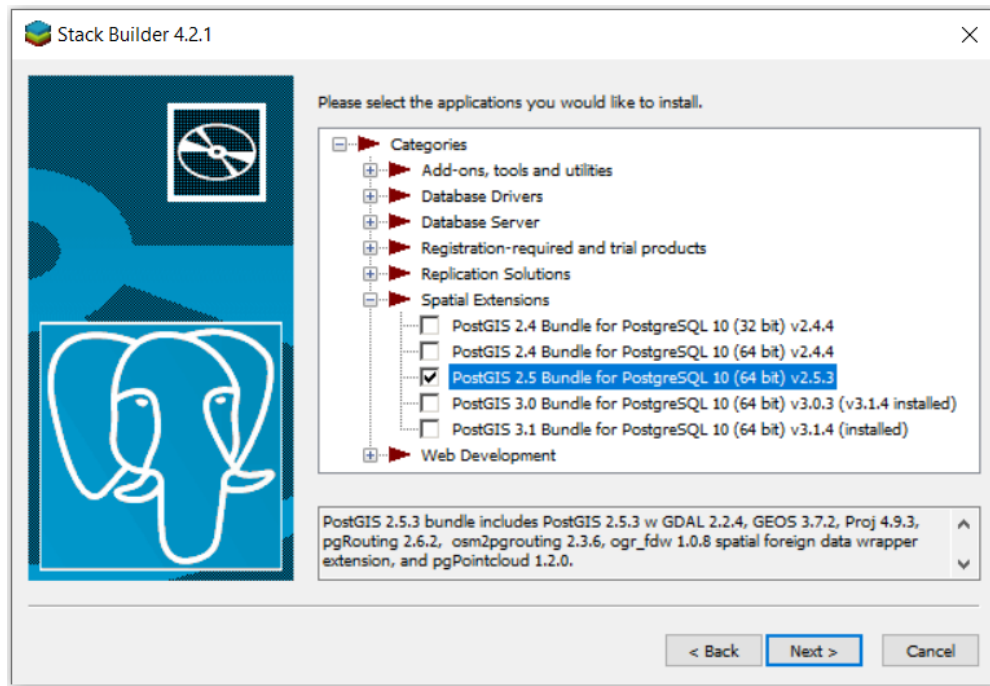
Once completion of the installation process, you will see screen asks if you wish to launch the stack builder. Check the box and press finish.



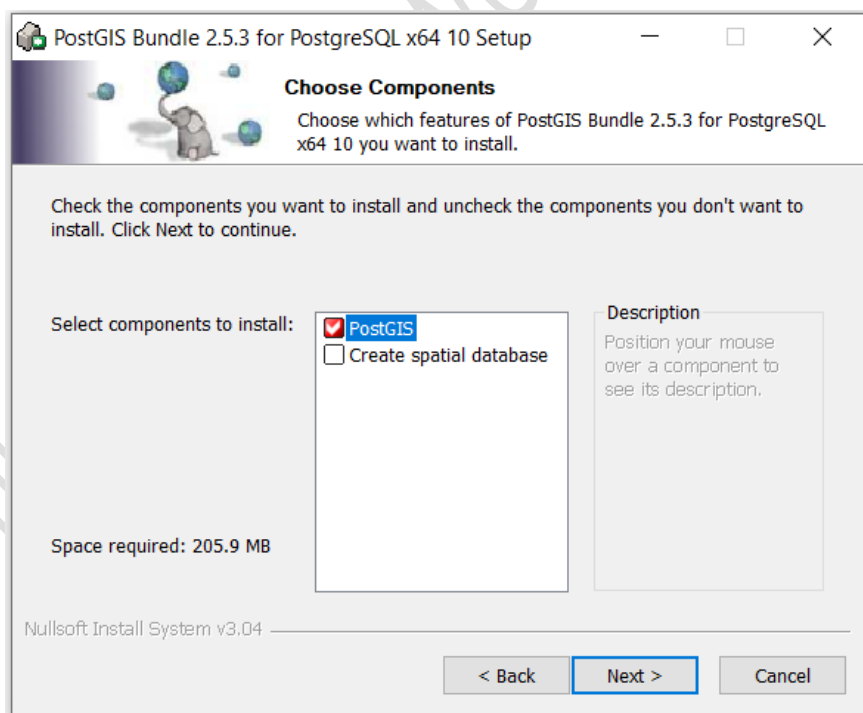
Next step, you will see the stack builder screen, this is where you download PostGIS plugin, from the dropdown select you version of PostgreSQL and click next.



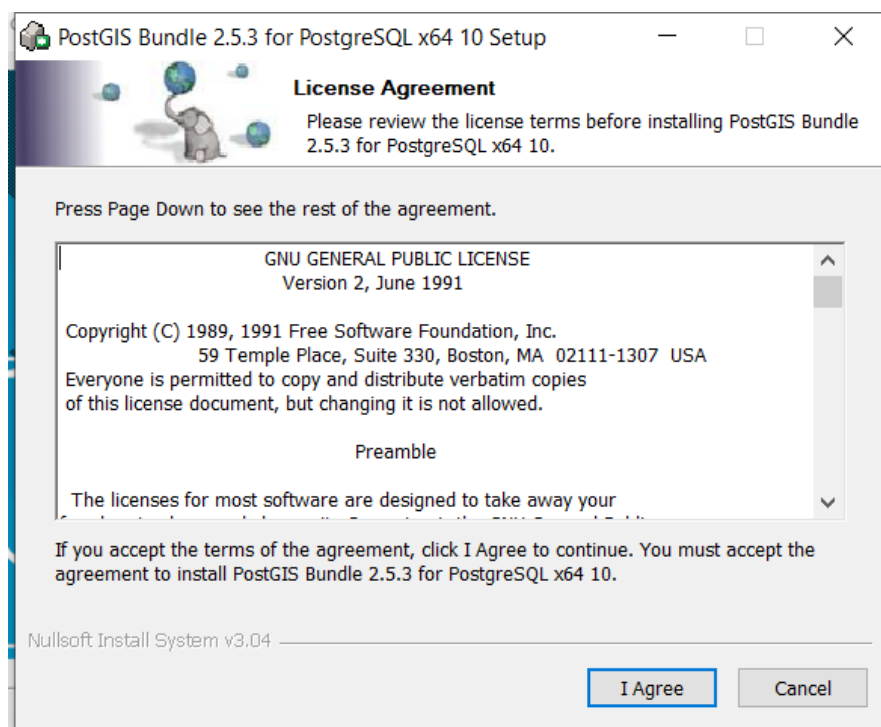
Next step, select spatial extensions bundle choose that refer to your system



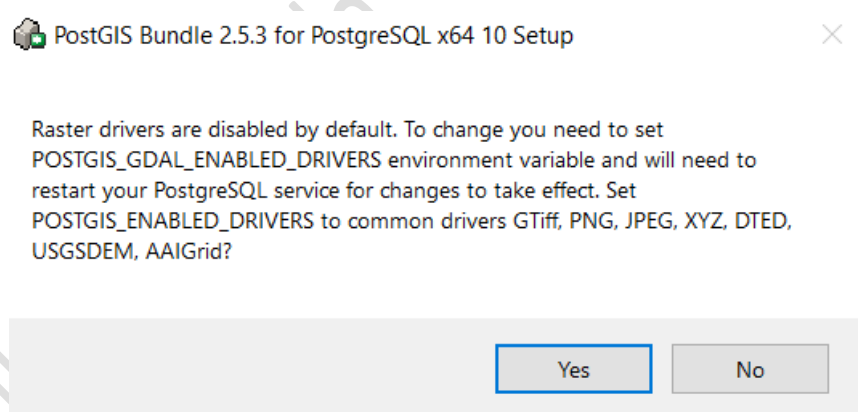
Enable PostGIS in a database, the create spatial database checkbox is optional.



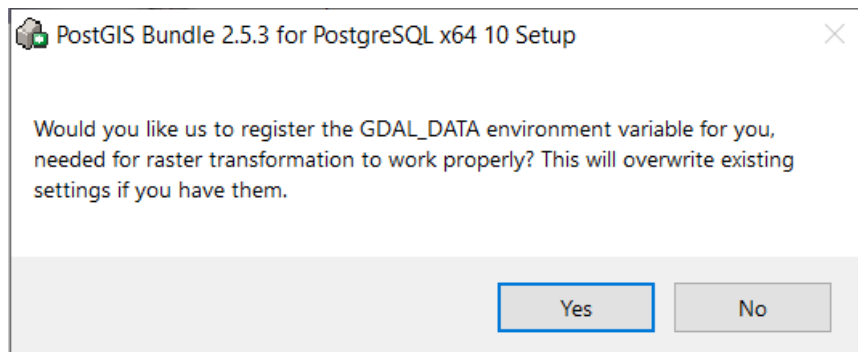
Agree public license.



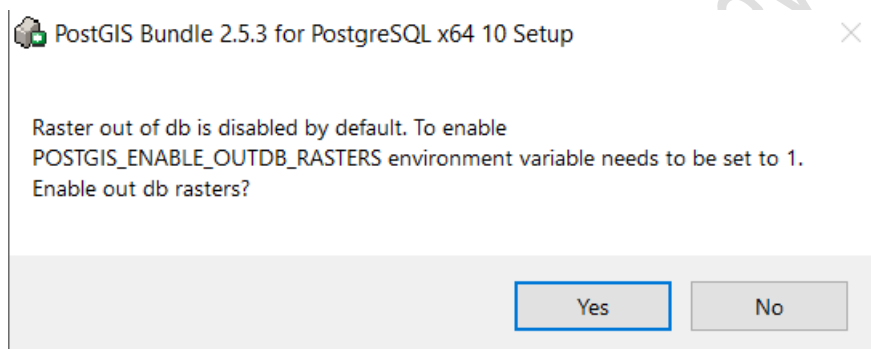
Click Yes register the GDAL_DATA



Click Yes enable raster drivers



Click Yes enable out of database rasters.

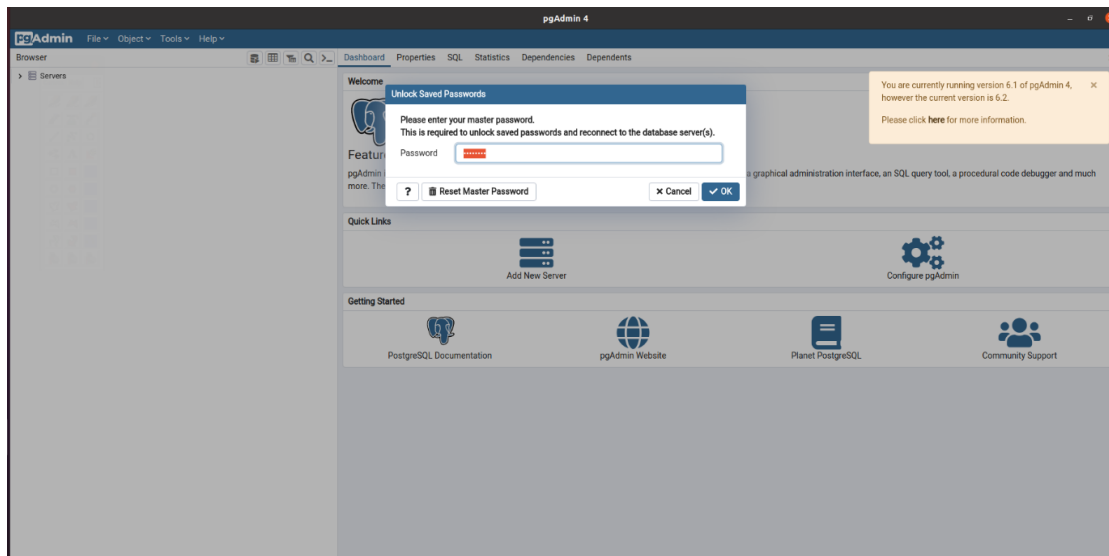


Now installation done!

Chapter III - Connect to PostgreSQL using pgAdmin4

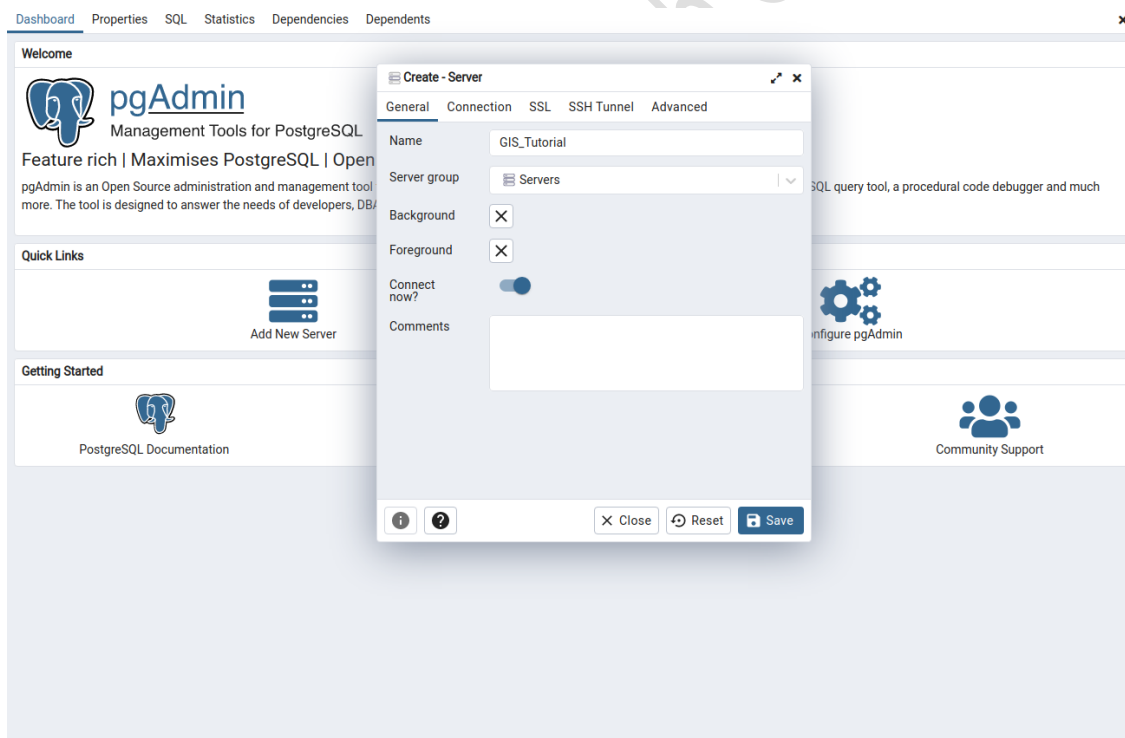
pgAdmin4 tool to manage and administrate the PostgreSQL server.

To connect to the PostgreSQL. To launch PostgreSQL, go to Start Menu and search pgAdmin 4. Specify the password of the superuser that can be used to connect to the PostgreSQL Server.

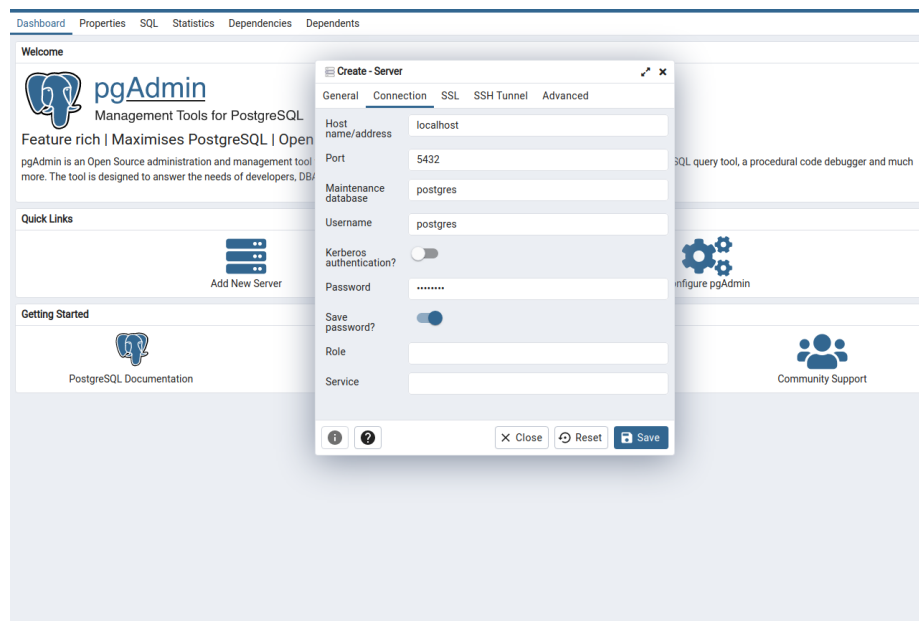


Once you're connected to server, you can view the database objects in the Browser window. To view the installed servers, click Servers. Under Servers, you can view the list of installed servers. In our case, if you want create a new server, click on Add New Server, provide the required fields

Step1: In the general tab, specify the name in the textbox

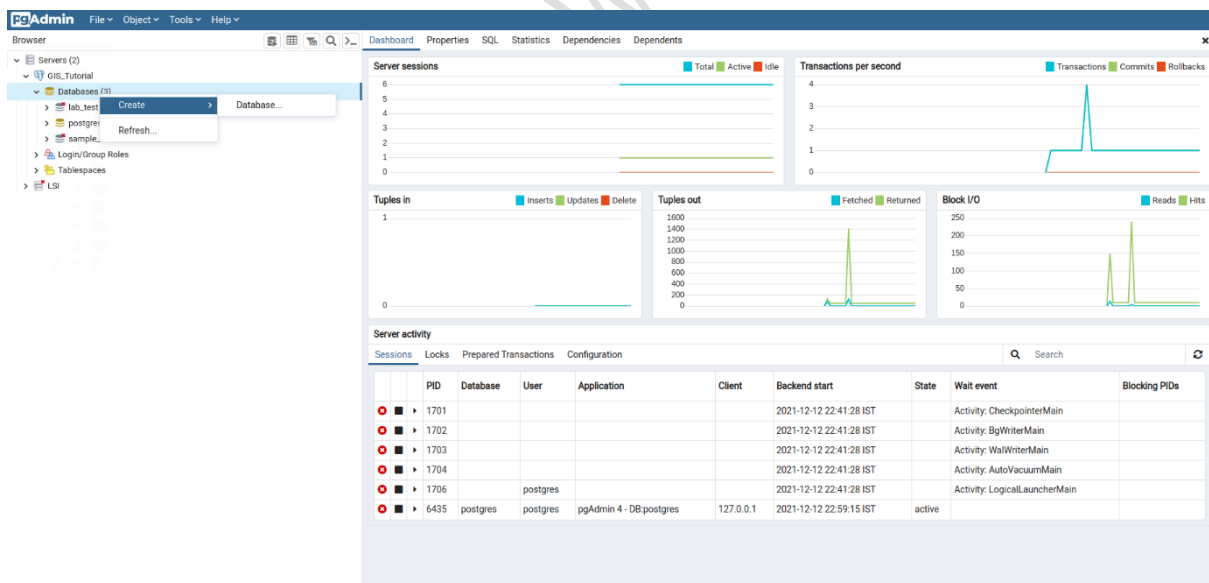


Step2: In the connection tab, specify the details in the textbox

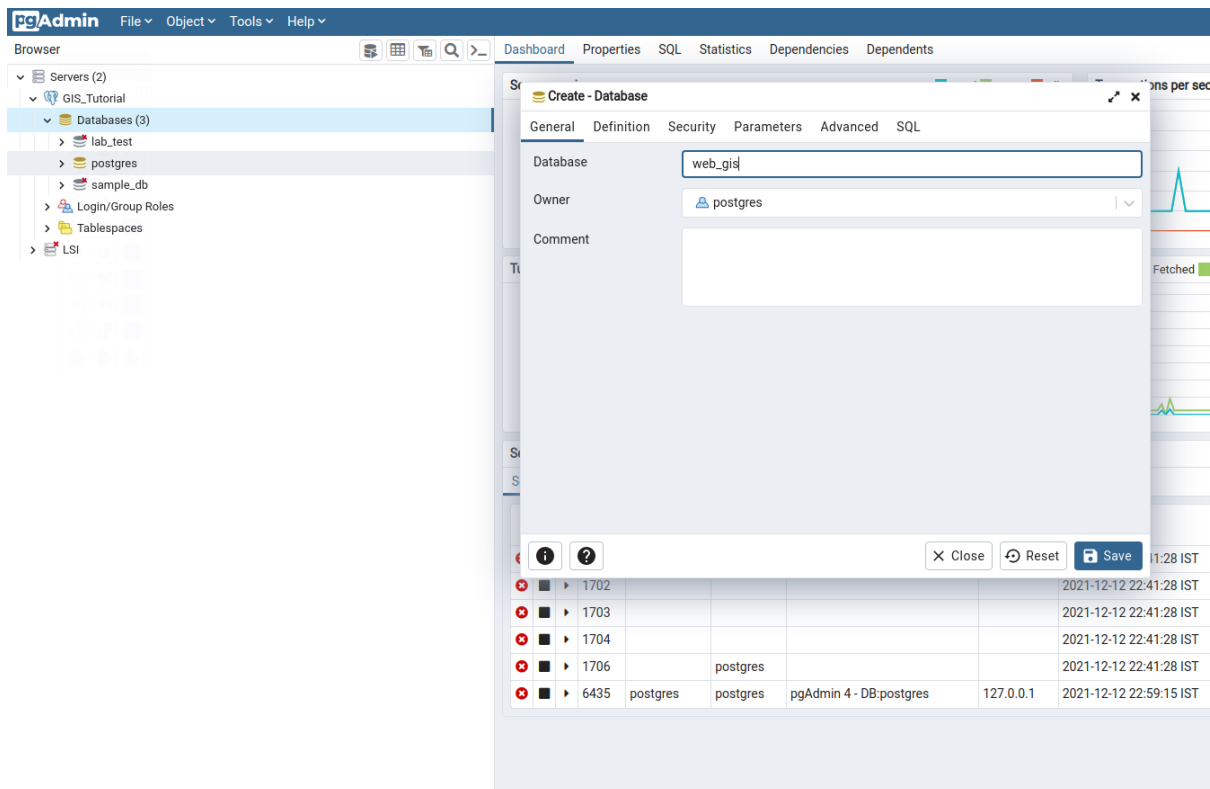


3. 1 Create a Database

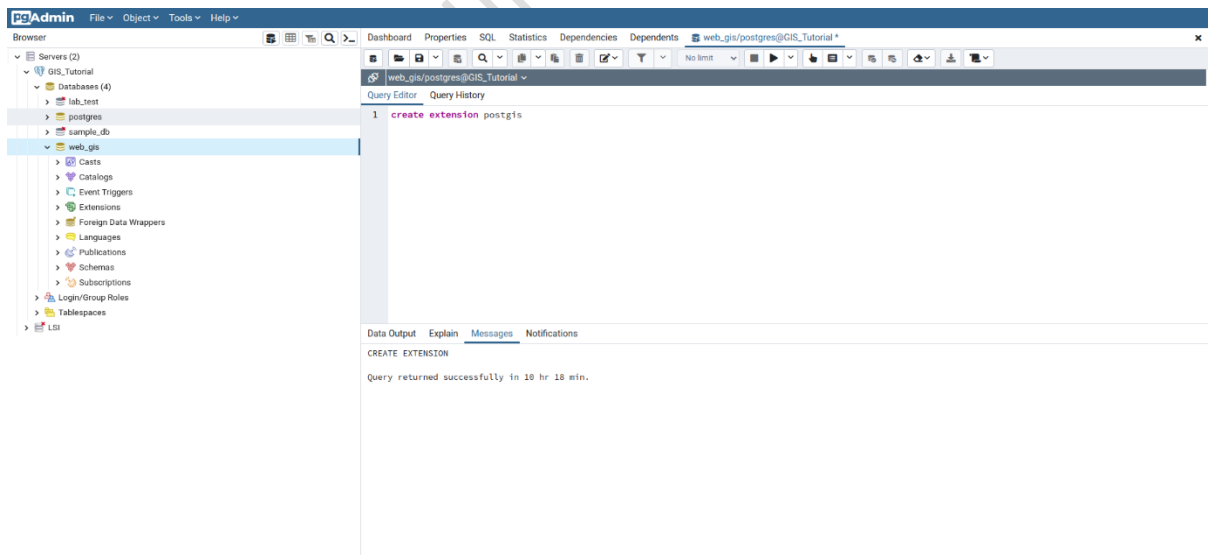
Now, let us create a database. To create a database, Expand **Serves** → Expand **GIS_Tutorial** → Right-click on **Databases** → Hover **Create** → Select **Database**.



Create database dialog box opens. In the general tab, specify the database name in the Database Textbox.



Now install postgis tool for database, click on database 'web_gis', now open SQL query tool in browser panel. Type query 'create extension postgis' in query editor, after that run query with F5 key.

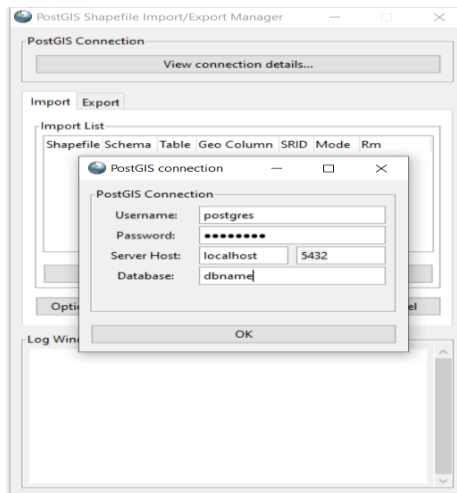


Chapter IV - Import Shapefile

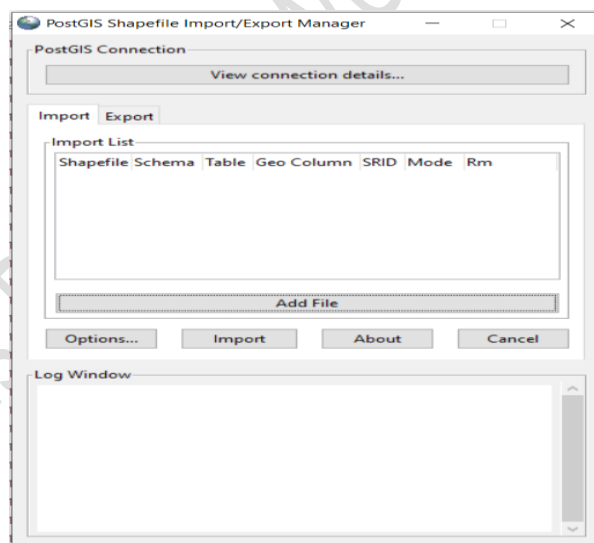
pgShapeloader Tools also known as PostGIS Shapefile and DBF loader. It is the graphical user interface similar to the command line shp2pgsql tools. It can help to load shapefiles into PostGIS database table like shp2pgsql tool.

Step 1: In windows go to search box type 'PostGIS Shapefile and DBF loader' and open.

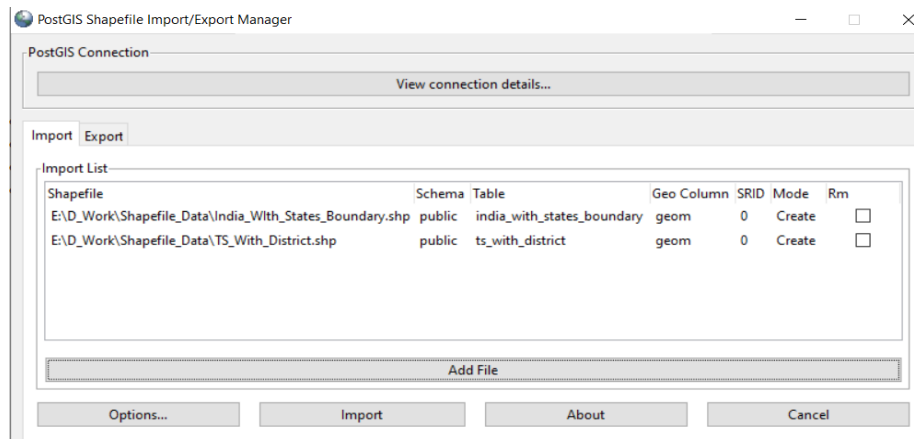
Step 2: Click on view connection, new window will open and fill the related information.



Step 3: Click on Add file → select only '.shp' extension format file.

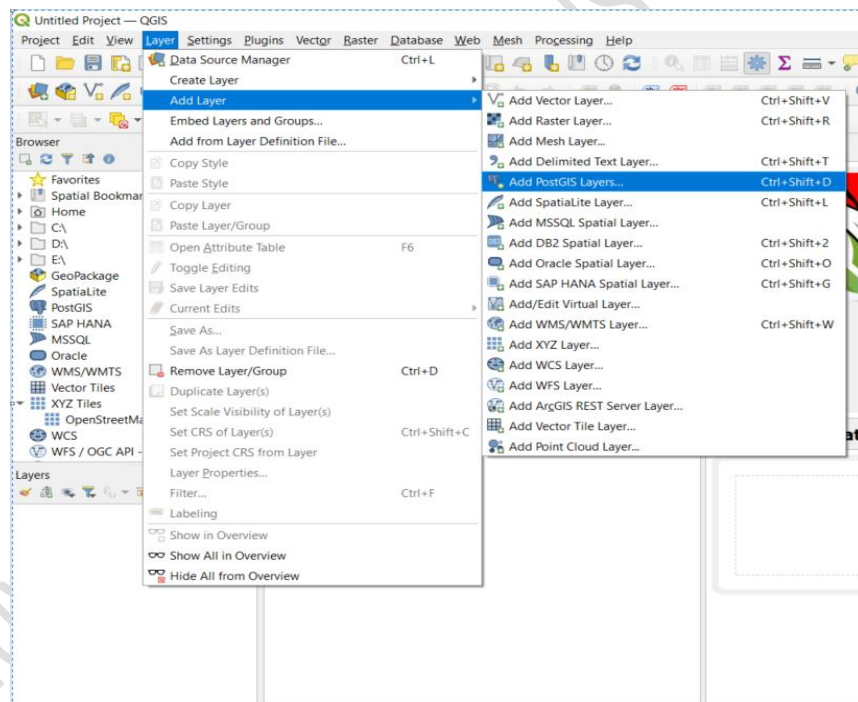


Step 4: Click on Import.

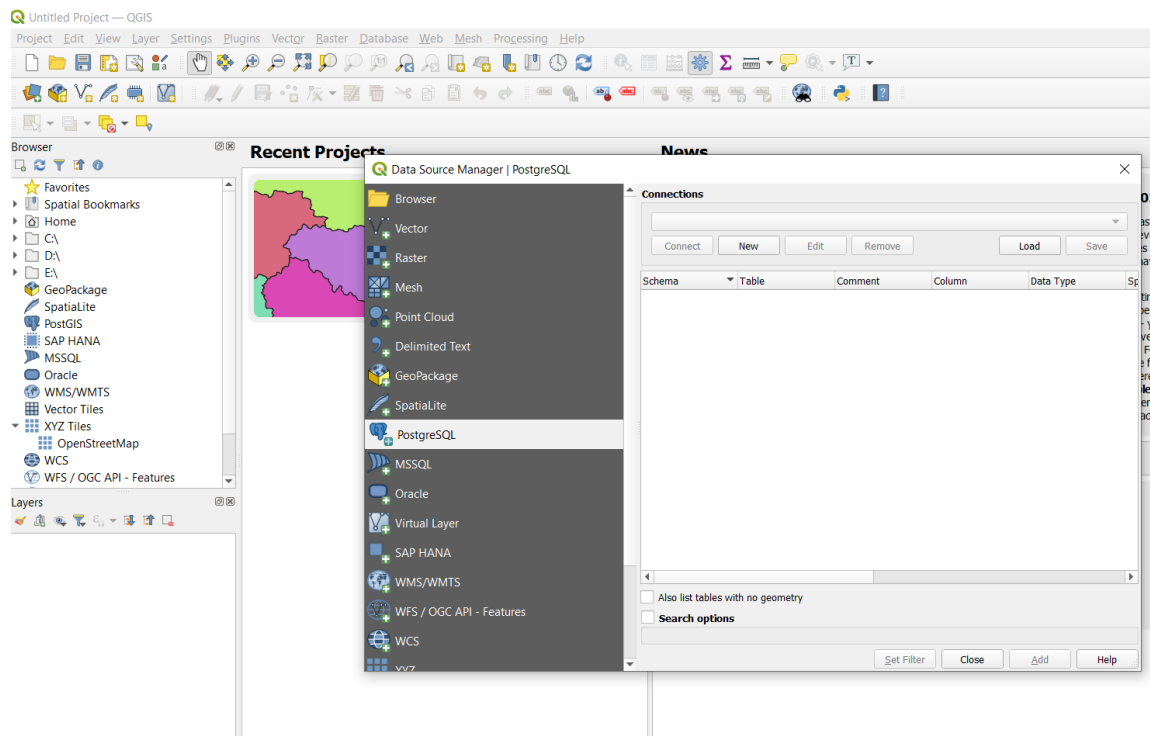


Chapter V - PostGIS Configurations to QGIS

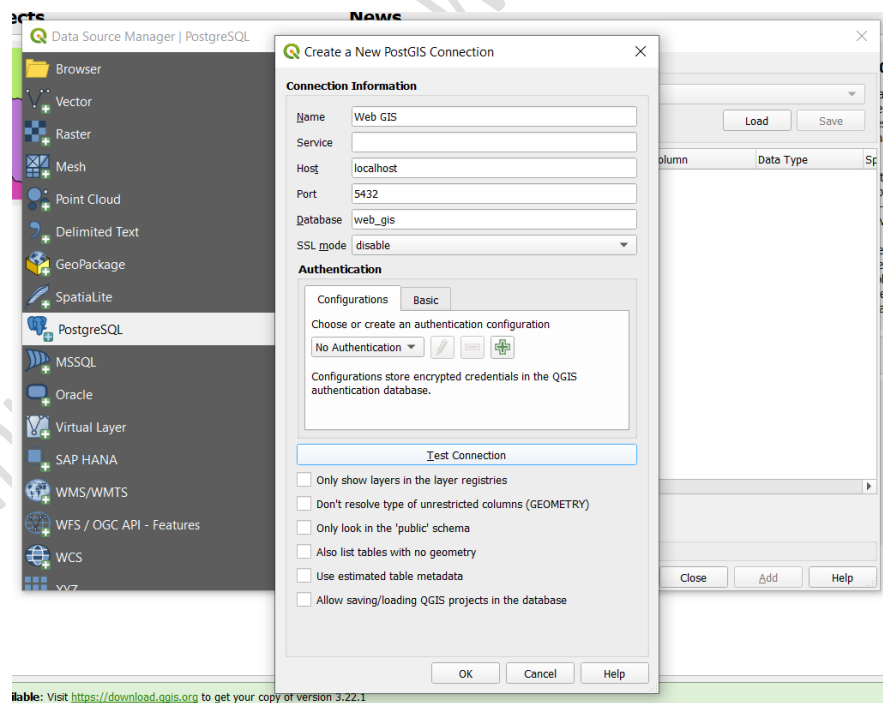
Sept1: Open QGIS, click Layer → Add layer → Add PostGIS layers, Add PostGIS Table dialog box opens.



Step2: In the dialogue, click “New”, it opens the dialogue to configure the PostGIS server, and database (web_gis).



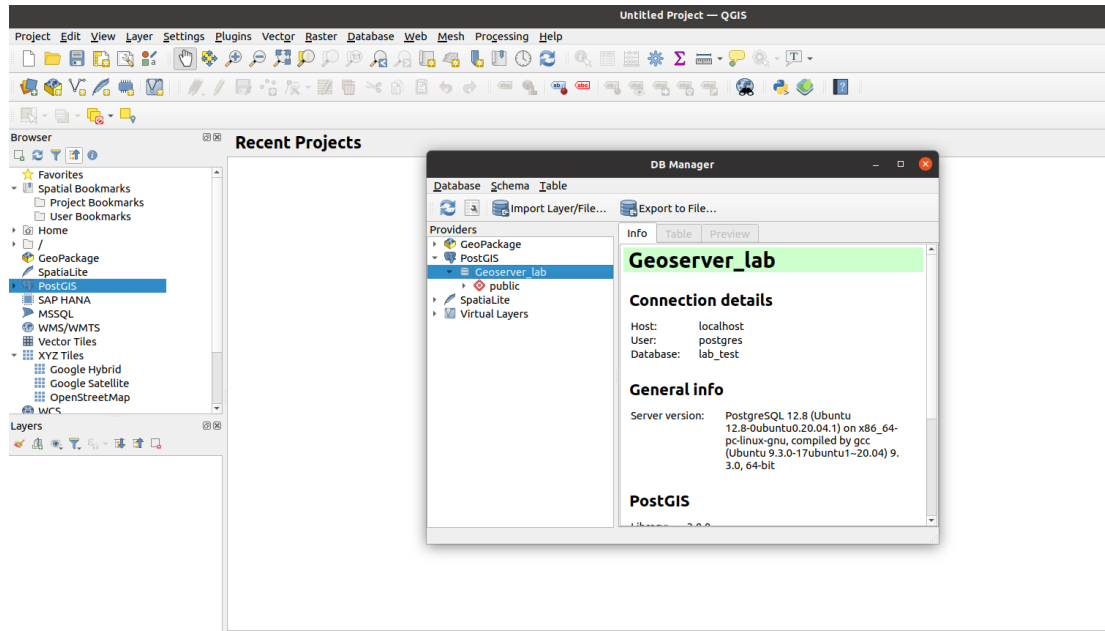
Fill the following fields



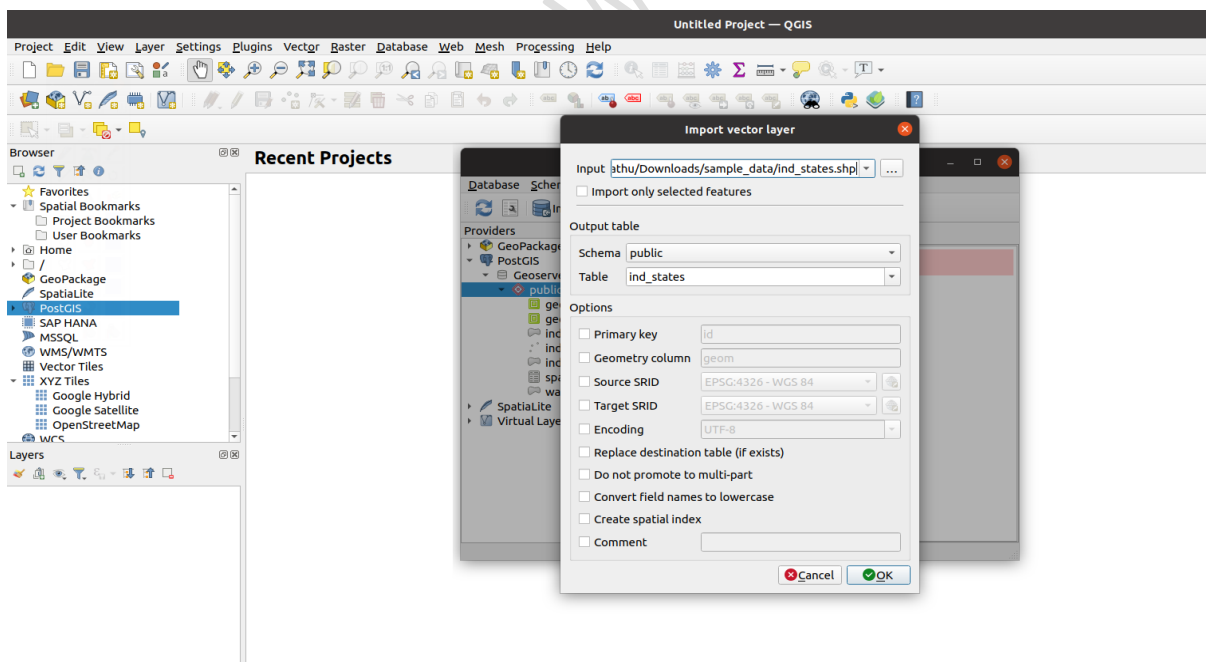
Step3: Back to the dialogue, click “Connect”, you shall be able to see all tables in the database, you may select any table, click “Add”, then you can load it into the QGIS.

5.1 DB manager

Step1: Once open “DB manager” interface, you shall be able to see several spatial database systems in the left panel. Click “PostGIS”, you should be able to see all connected PostGIS tables.

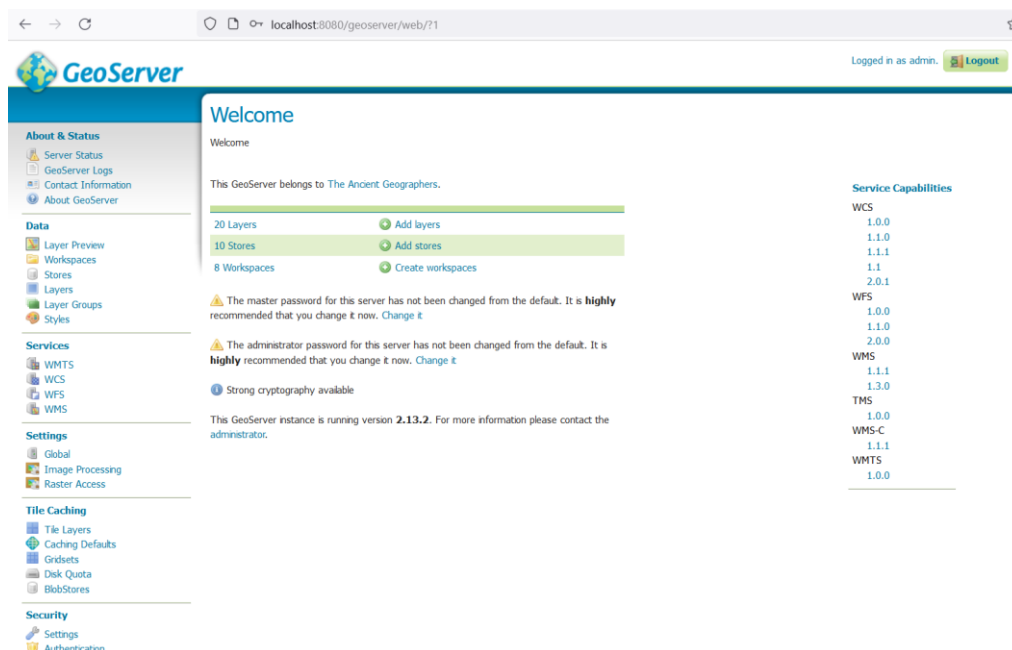


Fill the following fields

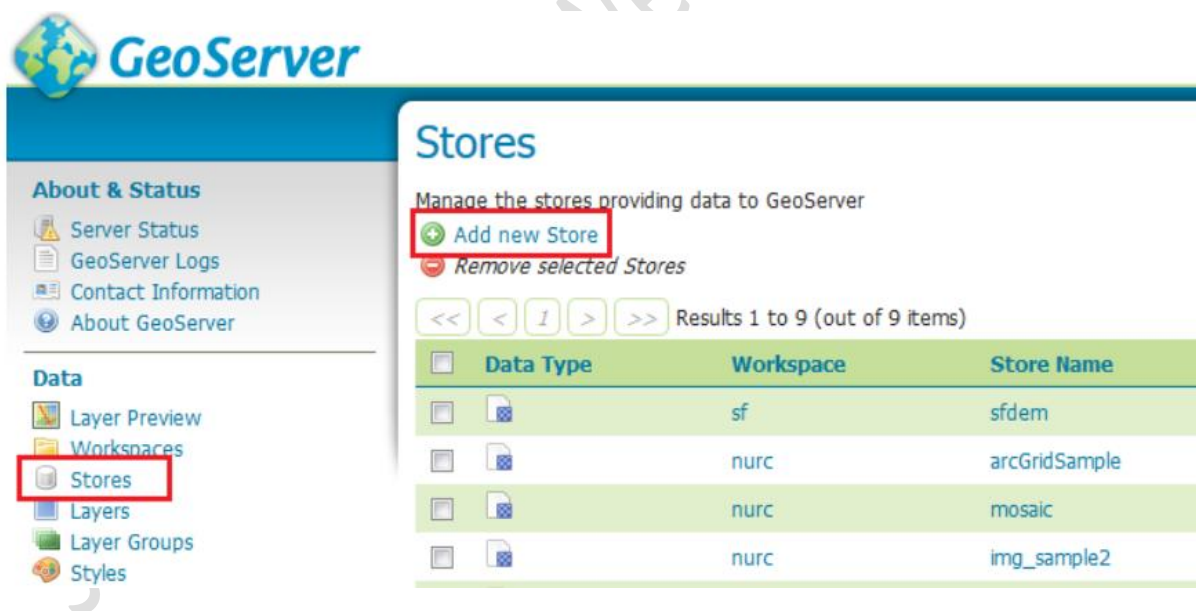


Chapter VI - PostGIS Configuration to Geoserver

Step1: In the opened browser tab login with the credentials.



Step2: Then navigate to the Data > Stores menu item in the left-hand panel and click Add new Store line.



Step3: In the New data source window press PostGIS - PostGIS Database option

New data source

Choose the type of data source you wish to configure

Vector Data Sources

- Directory of spatial files (shapefiles) - Takes a directory of shapefiles and exposes it as a data store
- PostGIS - PostGIS Database**
- PostGIS (JNDI) - PostGIS Database (JNDI)
- Properties - Allows access to Java Property files containing Feature information
- Shapefile - ESRI(tm) Shapefiles (*.shp)
- Web Feature Server - The WFSDataStore represents a connection to a Web Feature Server. This connection provides access to the Features published by the server, and the ability to perform transactions on the server (when supported / allowed).

Step4: New Vector Data Source window fill in the following fields

The screenshot shows the 'New Vector Data Source' window in GeoServer. The 'PostGIS' option is selected. The 'Basic Store Info' section has 'Workspace' set to 'gis_tutorials'. The 'Connection Parameters' section has 'host' as 'localhost', 'port' as '5432', 'database' as 'web_gis', 'schema' as 'public', 'user' as 'postgres', and 'passwd' as 'postgres'. The 'Namespace' is 'http://www.opengis.net/ogc'.

Step5: Fill the following fields

Basic Store Info

Workspace *

gis_tutorials

Data Source Name *

Description

☒ Enabled

Connection Parameters

host *

localhost

port *

5432

database

web_gis

schema

public

user *

postgres

passwd

Namespace *

gis_tutorials.com

☐ Expose primary keys