## Hands-on Lab: Create Tables and Load Data in PostgreSQL using pgAdmin



Estimated time needed: 20 minutes

In this lab, you will learn how to create tables and load data in the PostgreSQL database service using the pgAdmin graphical user interface (GUI) tool. The pgAdmin GUI provides an alternative to the command line for interacting with a PostgreSQL database using a graphical interface. This GUI provides a number of key features for interacting with a PostgreSQL database in an easy to use format.

### Software used in this lab

In this lab, you will use PostgreSQL Database. PostgreSQL is a Relational Database Management System (RDBMS) designed to efficiently store, manipulate, and retrieve data



To complete this lab you will utilize the PostgreSQL relational database service available as part of IBM Skills Network Labs (SN Labs) Cloud IDE. SN Labs is a virtual lab environment used in this course.

### Database used in this lab

You will use the Books database in this lab.

The following diagram shows the structure of the "myauthors" table from the Books database:

myauthors	
author_id	int
first_name	varchar(100)
middle_name	varchar(50)
last_name	varchar(100)

## **Objectives**

After completing this lab, you will be able to use pgAdmin with PostgreSQL to:

- Create databases and tables in a PostgreSQL instance
- Load data into tables manually using the pgAdmin GUI
- · Load data into tables from a text/script file

#### Lab Structure

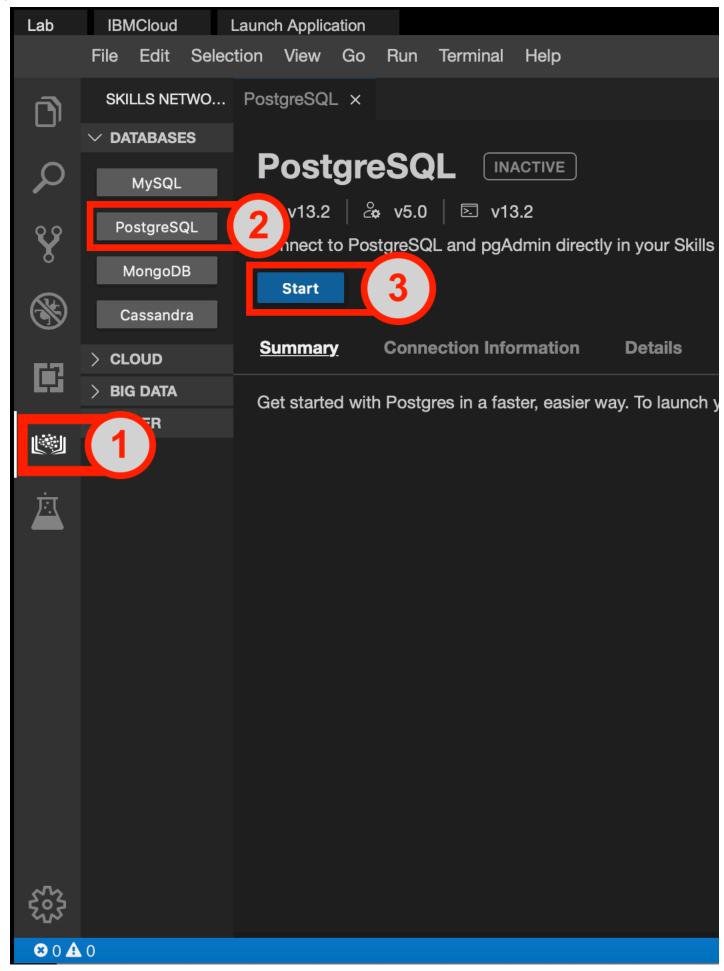
In this lab, you will complete several tasks in which you will learn how to create tables and load data in the PostgreSQL database service using the pgAdmin graphical user interface (GUI) tool.

### Task A: Create a database

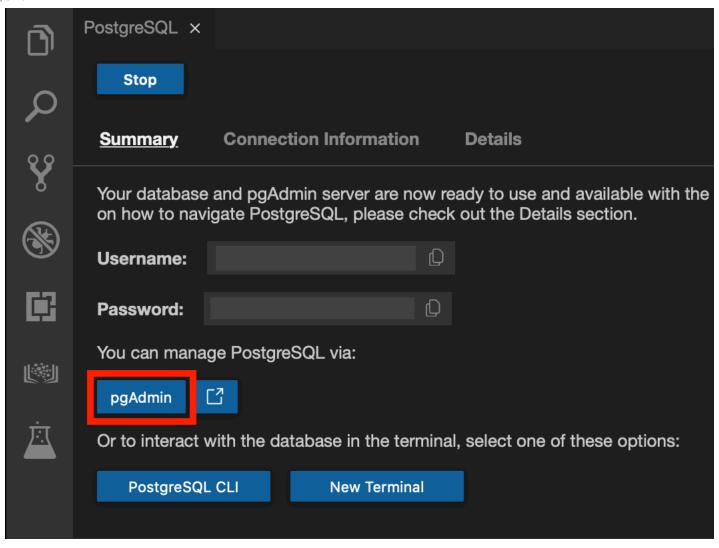
First, to create a database on a PostgreSQL server instance, you'll first launch a PostgreSQL server instance on Cloud IDE and open the pgAdmin Graphical User Interface

- 1. Click SKILLS NETWORK extension on the left side of the window.
- 2. Open the DATABASES drop down menu and click PostgreSQL.
- 3. Click Start. PostgreSQL may take a few moments to start.

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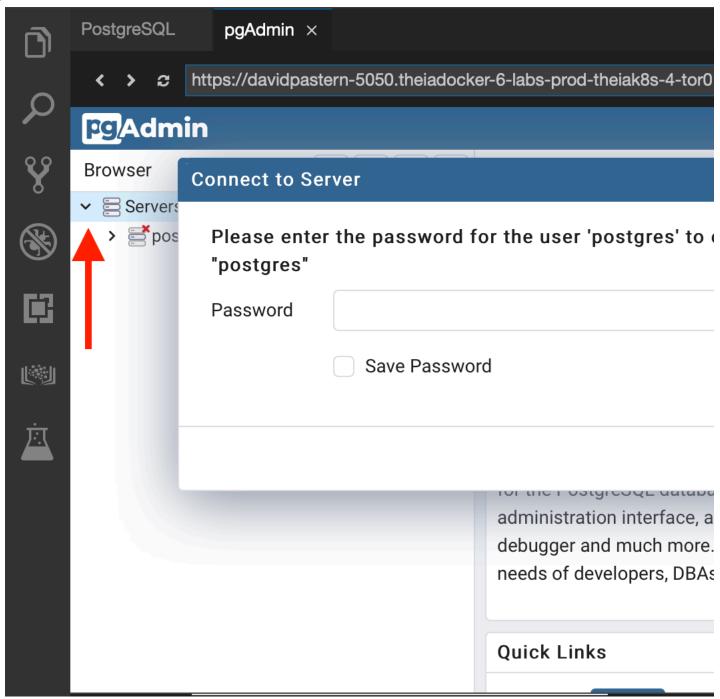


<sup>4.</sup> Next, open the pgAdmin Graphical User Interface by clicking **pgAdmin** in the Cloud IDE interface.



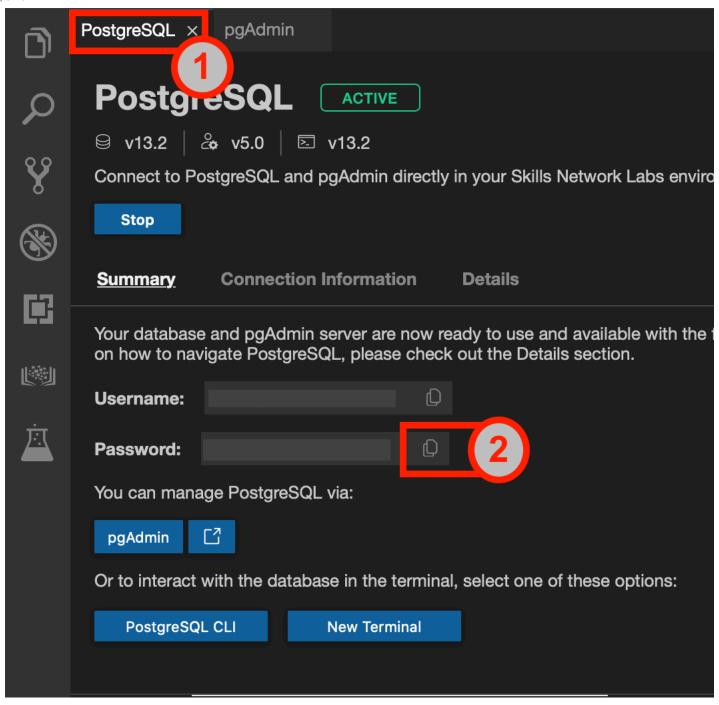
5. Once the pgAdmin GUI opens, click Servers tab on the left side of the page. You will be prompted to enter a password.

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- 6. To retrieve your password, click PostgreSQL tab near the top of the interface.
- 7. Click the Copy icon on the left of your password to copy the session password onto your clipboard.

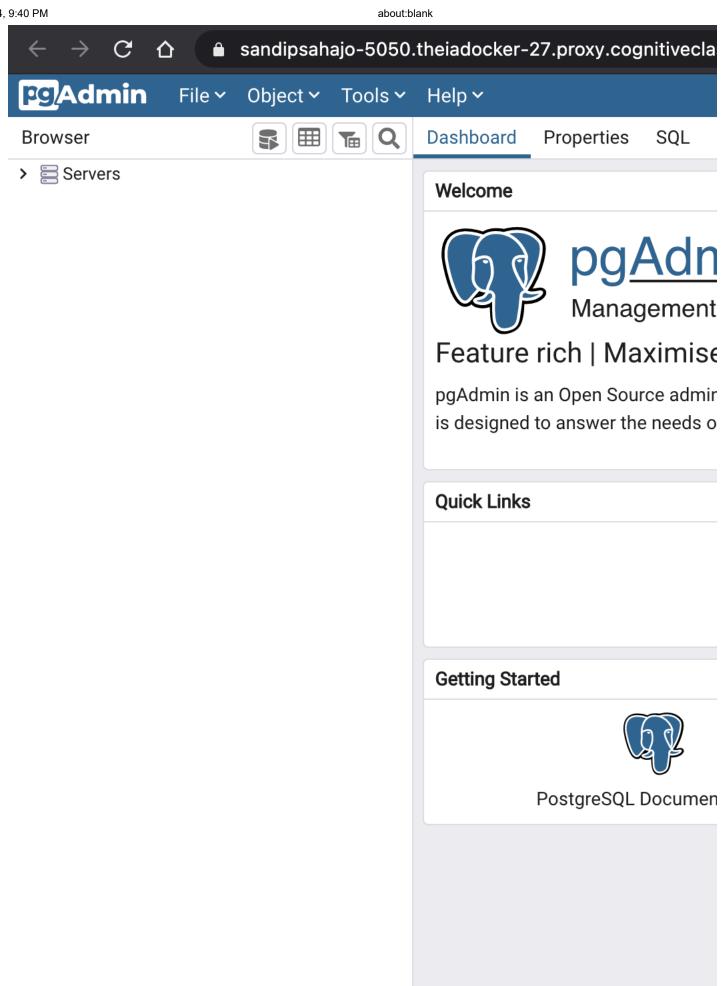
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- 8. Navigate back to the **pgAdmin** tab and paste in your password, then click **OK**.
- 9. You will then be able to access the pgAdmin GUI tool.

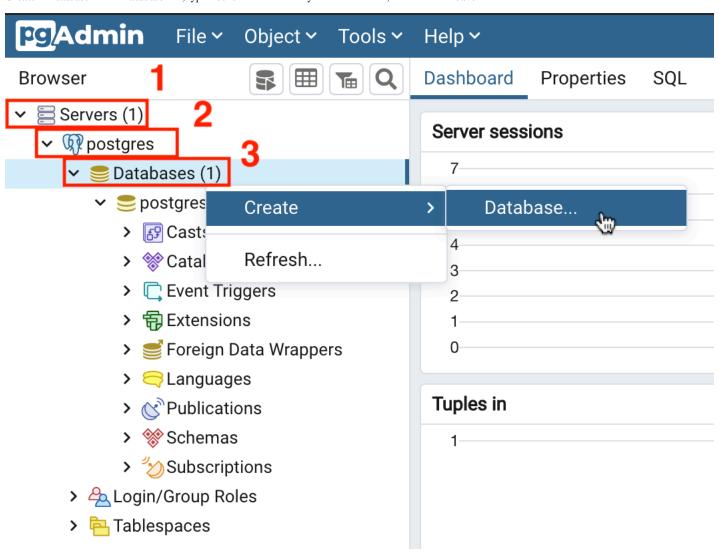
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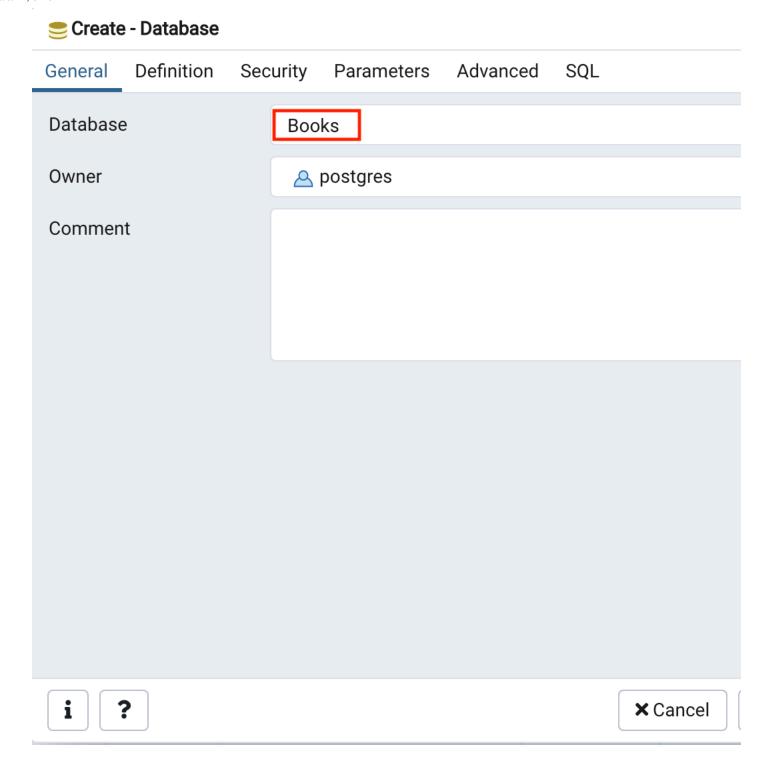


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10. In the tree-view, expand Servers > postgres > Databases. If prompted, enter your PostgreSQL service session password. Right-click on Databases and go to Create > Database. In the Database box, type Books as the name for your new database, and then click Save. Proceed to Task B.



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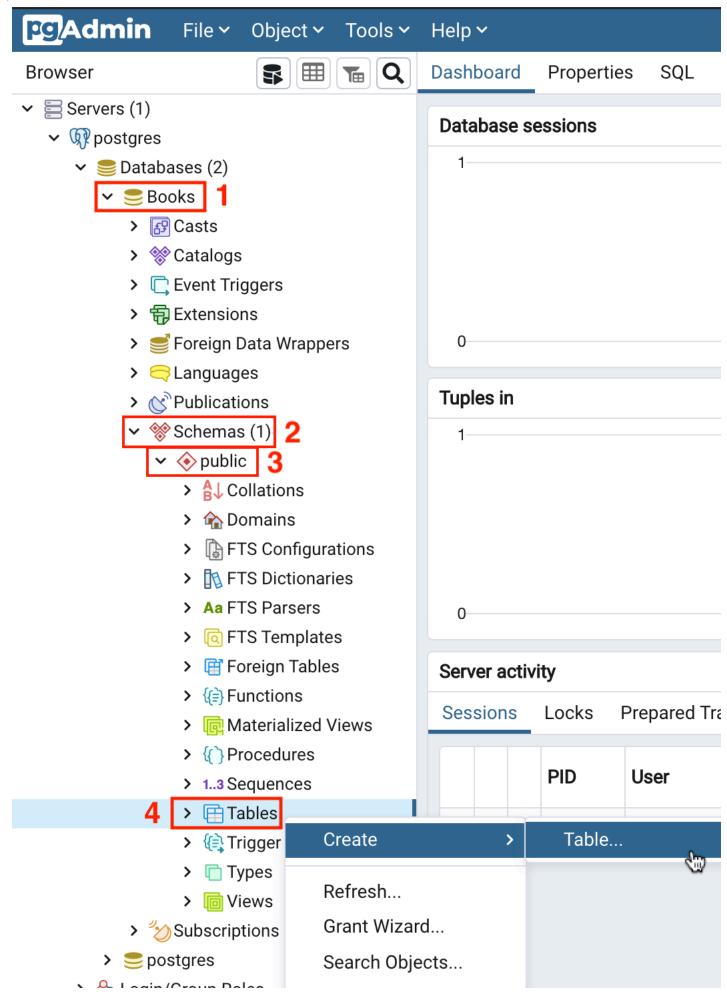


# Task B: Create tables

Now that you have your PostgreSQL service active and have created the **Books** database using pgAdmin, let's create a few tables to populate the database and store the data that you wish to eventually upload into it.

1. In the tree-view, expand Books > Schemas > public. Right-click on Tables and go to Create > Table.

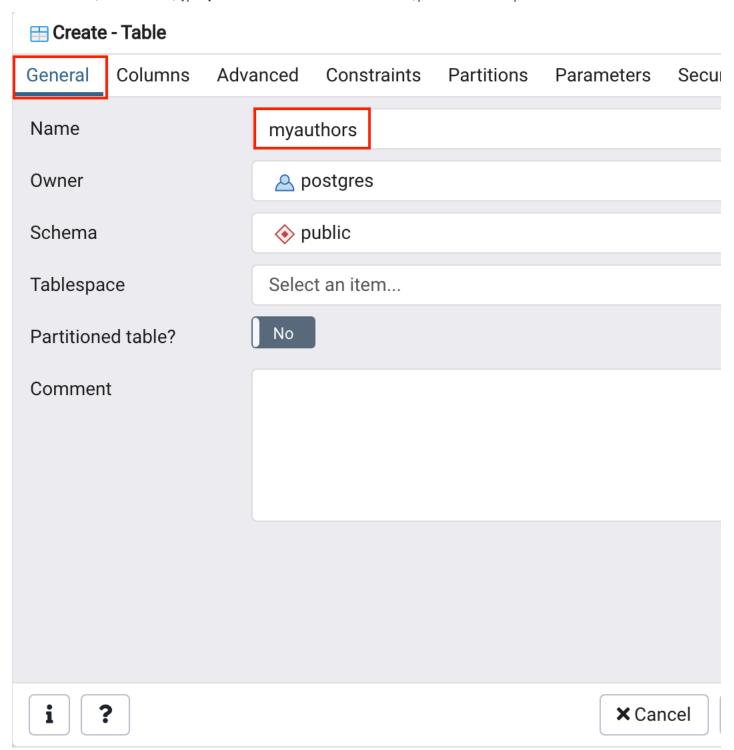
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- Login/Group koies
- > Pablespaces

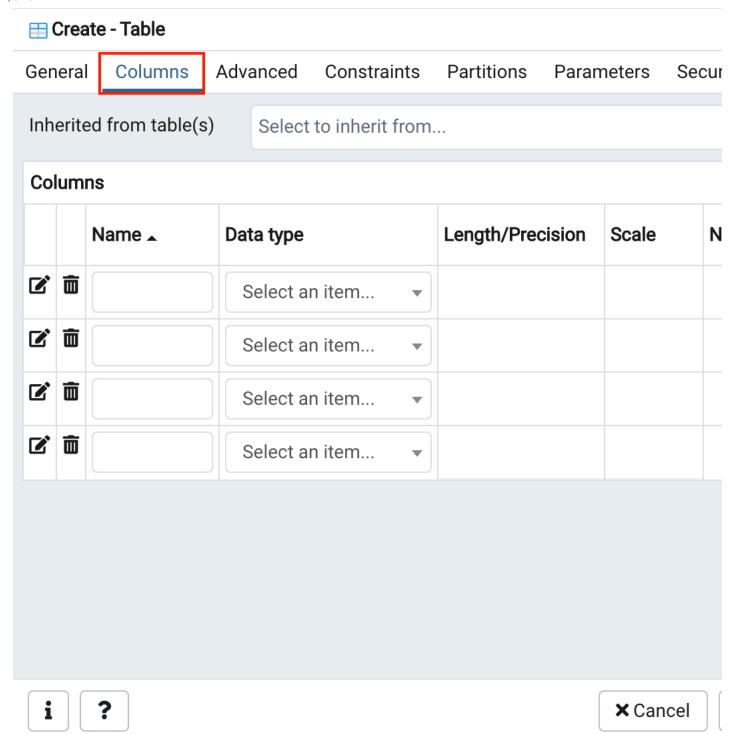
**Query Tool** 

2. On the General tab, in the Name box, type myauthors as name of the table. Don't click Save, proceed to the next step.



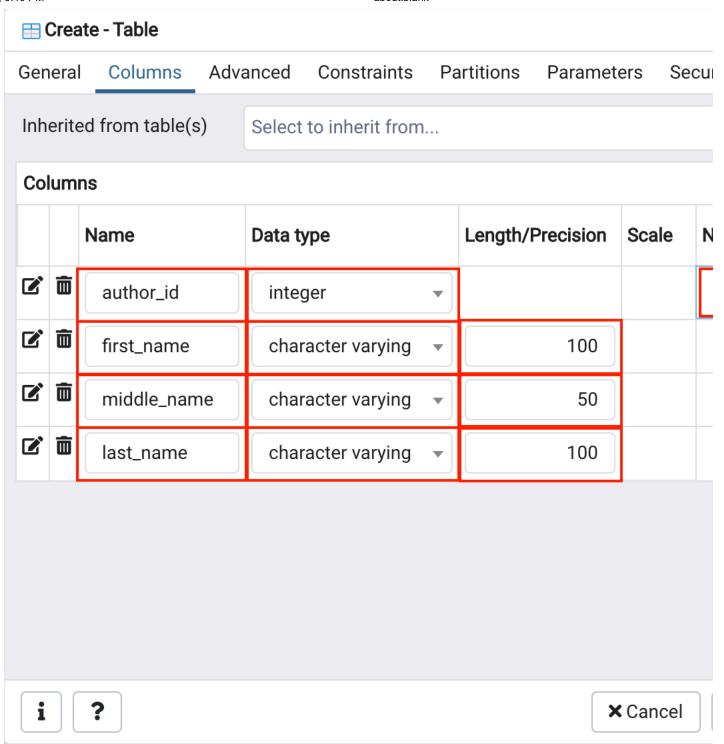
3. Switch to the tab Columns and click the Add new row button four times to add 4 column placeholders. Don't click Save, proceed to the next step.

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<sup>4.</sup> Enter the myauthors table definition structure information as shown in the image below in the highlighted boxes. Then click Save. Proceed to Task C.

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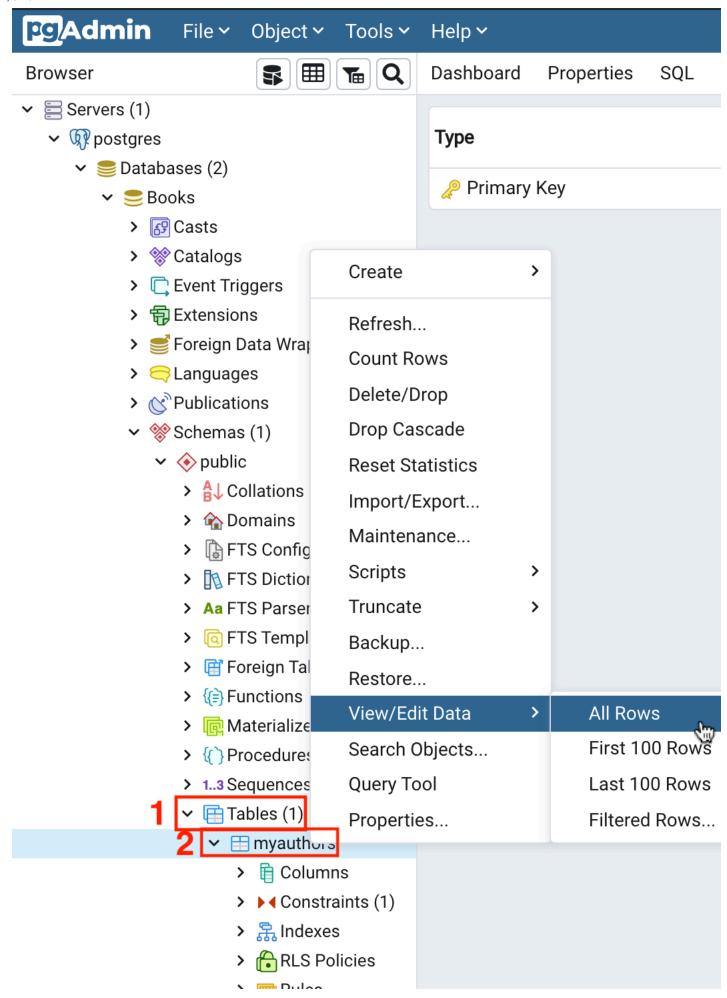


## Task C: Load data into tables manually using the pgAdmin GUI

You now have a database and have created tables within it. With the pgAdmin GUI, you can insert values into the tables manually. This is useful if you have a few new entries you wish to add to the database. Let's see how to do it.

1. In the tree-view, expand Tables. Right-click myauthors and go to View/Edit Data > All Rows.

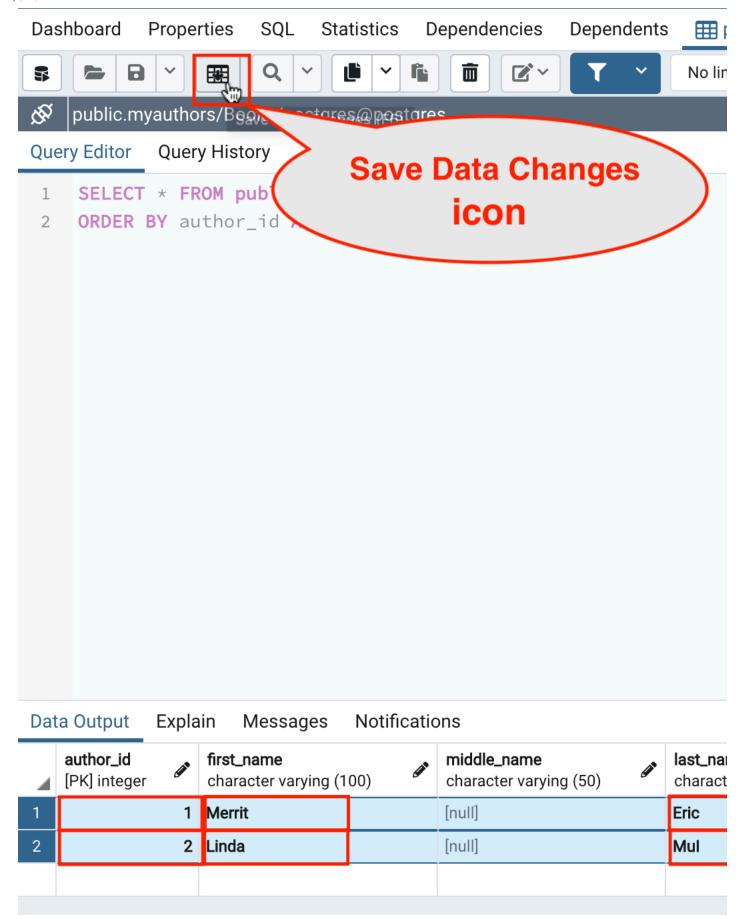
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2. You will insert 2 rows of data into the **myauthors** table. In the lower **Data Output** pane, enter **myauthors** table data information for 2 rows as shown in the highlighted boxes in the image below. Then click the **Save Data Changes** icon. Proceed to Task D.

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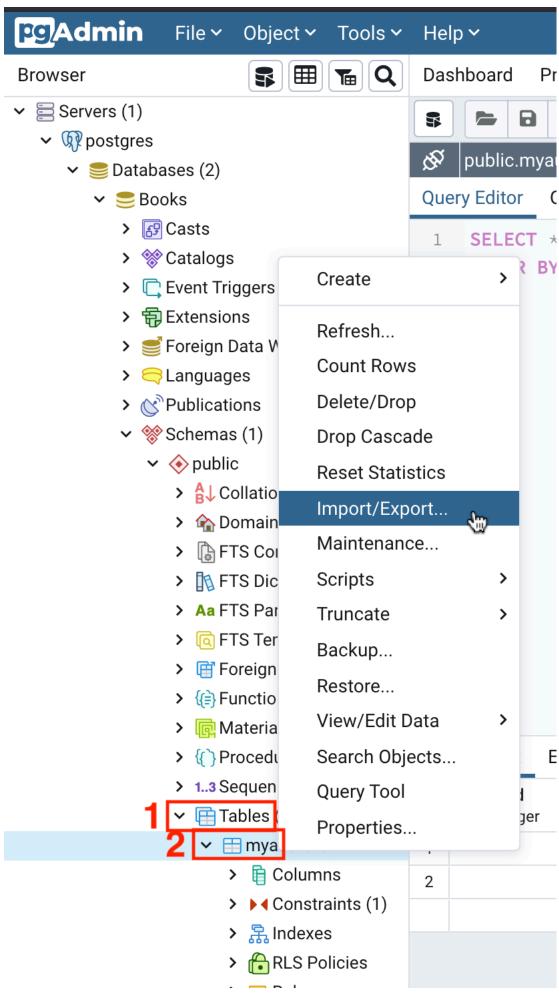
Task D: Load data into tables using a text/script file

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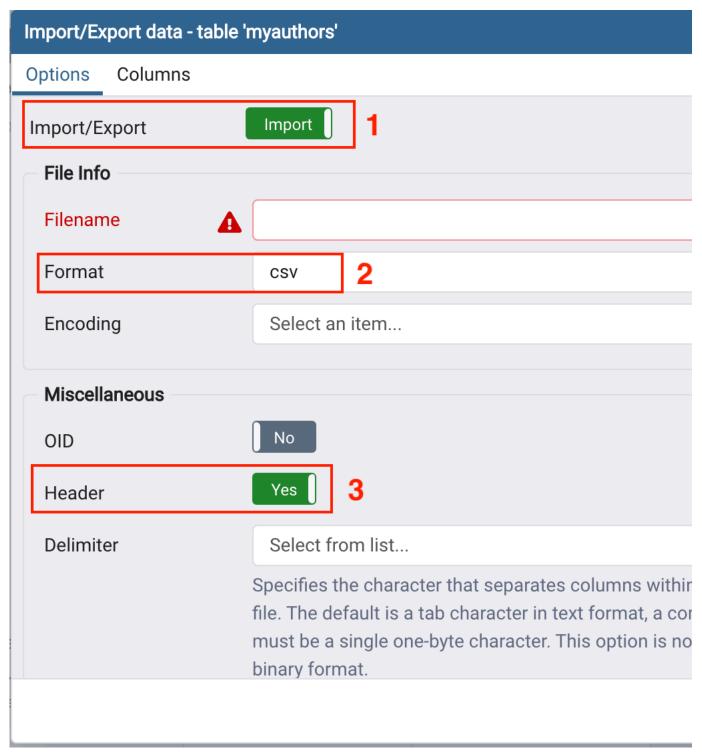
In the previous task, you entered some data entries into a table manually with pgAdmin. While this method can be useful for small additions, if you wish to upload large amounts of data at once, the process becomes tedious. An alternative is to load data into tables from a text or script file containing the data you wish to enter. Let's take a look at how to do this.

- 1. You will import the remainder of the **myauthors** table data from a csv text file. Download the csv file below to your local computer:
  - myauthors.csv
- 2. In the tree-view, right-click on myauthors and go to Import/Export.

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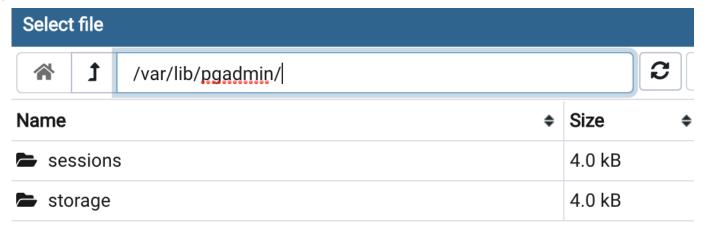


- > Im Rules
  > Triggers
- 3. Follow the instructions below to import:
  - Make sure Import/Export is set to Import, Format = csv and Header = Yes. Then click Select file icon by the Filename box.



• Click Upload File.

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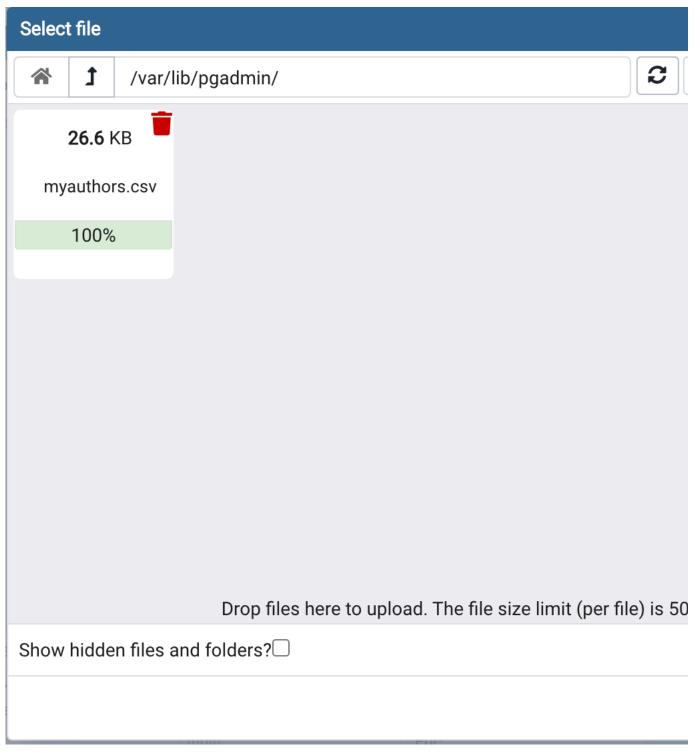
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o Double-click on the drop files area and load the myauthors.csv you downloaded earlier from your local computer.

Select	file		
	ţ	/var/lib/pgadmin/	
		Double click on this cases	
		Double click on this space	
		Drop files here to upload. The file size limit (per file) is !	50
Show	hidde	en files and folders?	
		FIII:	

 $\circ~$  When the upload is complete, close the drop files area by clicking  $\boldsymbol{X}.$ 



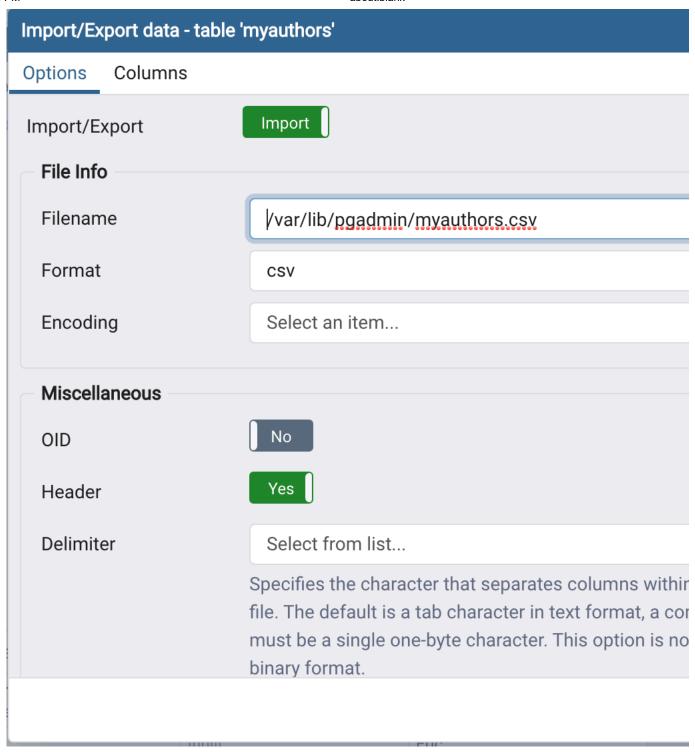
 $\circ~$  Select the uploaded  $my authors.csv~{\rm file}$  from the list and click Select.

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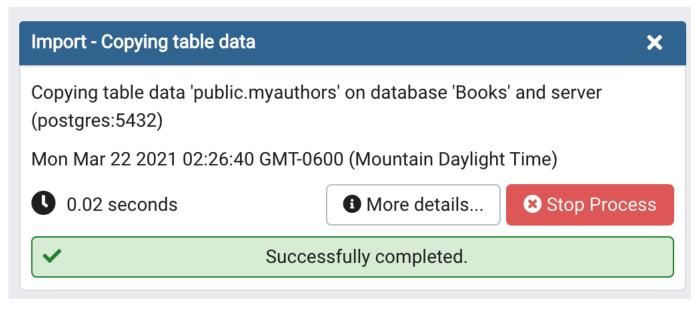
Show hidden files and folders?	

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 $<sup>\</sup>circ~$  Click  $\mathbf{OK}$  and notification of import success will appear.



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4. Repeat Task C Step 1 to check that the newly imported data rows appear along with your previously inserted 2 rows.

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Query Editor Query History

- 1 SELECT \* FROM public.myauthors
- 2 ORDER BY author\_id ASC

Data O	utput Explain	Messages Notifications		
	author_id [PK] integer	first_name character varying (100)	middle_name character varying (50)	las cha
1	1	Merrit	[null]	Eric
2	2	Linda	[null]	Mu
3	3	Alecos	[null]	Par
4	4	Paul	C.van	100
5	5	David	[null]	Cro
6	6	Richard	[null]	Blu
7	7	Yuval	Noah	Har
8	8	Paul	[null]	Alb
9	9	David	[null]	Bea
10	10	John	Paul	She
11	11	Andrew	[null]	Mill
12	12	Melanie	[null]	Swa
13	13	Neal	[null]	For
14	14	Nir	[null]	Sha
15	15	Tim	[null]	Kin
16	16	Mike	[null]	Мс
17	17	Brian	P.	Ηοί
18	18	Jean-Philippe	[null]	Aur
19	19	Lance	[null]	For

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			F. 1911.3	
20	20	Richard	C.	Jef
21	21	William	L. S	Sim
22	22	Magnus	Lie	Het
23	23	Mike	[null]	Мс
24	24	Norman	[null]	Ma
25	25	John	E. I	Ној
26	26	S.	[null]	Suc

As you can see, the data contained in the csv file was successfully uploaded into the table and you did not have to manually input hundreds of entries.

## **Conclusion**

Congratulations! You have completed this lab, and you have learned how to create databases and tables in a PostgreSQL instance, load data into tables manually using the pgAdmin GUI, and load data into tables from a text/script file.

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