

# USING TABLEAU WITH POSTGRESQL



This is the second part in our series on Tableau. In our [introduction to Tableau](#), we explained how to use Tableau software to draw charts. For the data, we used a Microsoft Excel spreadsheet. But Excel is not a database, so you cannot perform operations like correlations because Excel doesn't have indexes or other features common in databases.

Tableau's answer to that? With the desktop version of Tableau, you can convert Excel files to Tableau format (a **.hyper** format file). That adds the extra attributes to your Excel data that are needed to make Excel function *like* a database.

But a better approach is to load Excel data into a database first, since a database is built for SQL operations and Excel is not. We illustrate this approach here by loading Excel data into PostgreSQL.

*(This article is part of our [Tableau Online Guide](#). Use the right-hand menu to navigate.)*

## Prerequisites for PostgreSQL in Tableau

We'll use PostgreSQL for this example because it's open source. Other data warehouse-type databases can be expensive, so PostgreSQL is a good place to start.

Before we show how to use PostgreSQL with Tableau, some setup is necessary. First, we need to put some data into Excel and then expose PostgreSQL to the public internet so that Tableau Cloud can access it. Follow these steps:

1. Enable Remote Access to PostgreSQL.

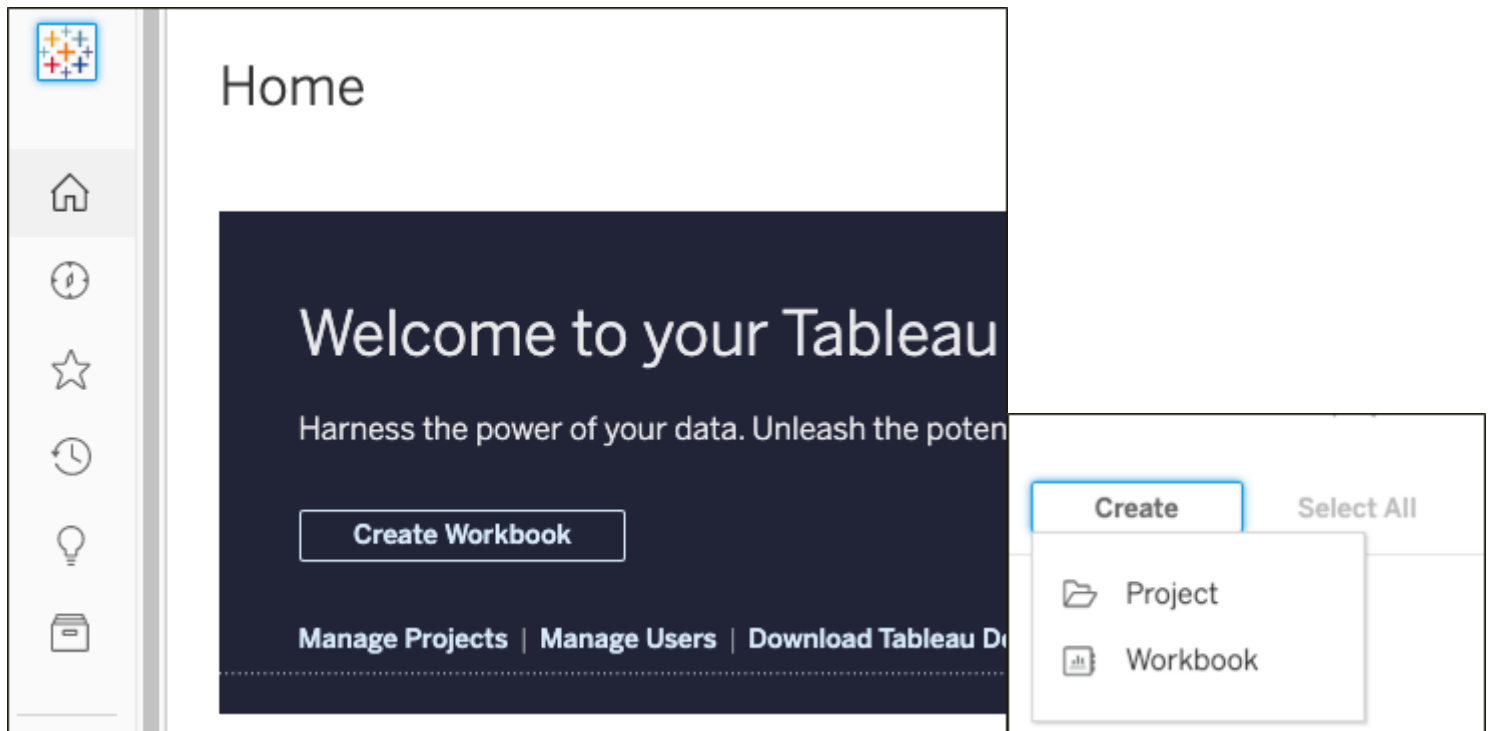
- Put `listen_addresses = '*'` into `/etc/postgresql/9.5/main/postgresql.conf`
  - Put **host all all password** into `/etc/postgresql/9.5/main/pg_hba.conf`
  - Open the firewall port to allow inbound connections on port: 5432.
2. Create a database using the psql shell.
  3. Create a user and give them access to that database.
  4. Load some data into a table.
    - If you can, use a credit or bank statement so you can have similar financial information as we are using below. We need each transaction assigned to a category.
    - Download your bank statement as a .csv file and then upload it to PostgreSQL using the COPY command.

**Note:** We will use this same data in additional articles in this series.

Second, you'll want access to the cloud version of Tableau. Tableau offers a free 14-day trial. Use these tutorials to practice before purchasing.

## Create a workbook in Tableau

Login to [online.tableau.com](https://online.tableau.com) then click **Create Workbook**.



## Add a data source

Add a data source. If you are unable to connect, then you have not properly exposed PostgreSQL to the public internet.

**Note:** You need to put some security on this as hackers will start running port scan. At a minimum, put a password and change the Postgres user's password. It would be difficult to limit the IP address that can scan your server to the PostgreSQL cloud, unless you figure out what that is.

Fill in the bottom and turn off SSL, unless you have an SSL certificate.

Put the name of the database that you created when you imported your bank statement (or other

data).

The screenshot shows a web interface for connecting to data. At the top, there are tabs for 'Data' and 'Help'. Below this is a header 'Connect to Data' with a sub-header 'Create a new data source from scratch or choose an existing data source to start from.' There are three tabs: 'On This Site', 'Files', and 'Connectors', with 'Connectors' being the active tab. A 'Back' link is visible. The main section is titled 'PostgreSQL' and contains several input fields: 'Server:' (empty), 'Port:' (5432), 'Database:' (empty), 'Username:' (empty), and 'Password:' (empty). Below these is a checkbox labeled 'Require SSL (recommended)' which is checked. A 'Connect' button is partially visible at the bottom right.

Click **update** to

refresh the columns with data

chase (expenses)

chase

Sort fields Data source order

chase Transactiondate	chase Postdate	chase Description	chase Category	chase Type	chase Amount
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Update Now

Data should

populate now:

chase (expenses)

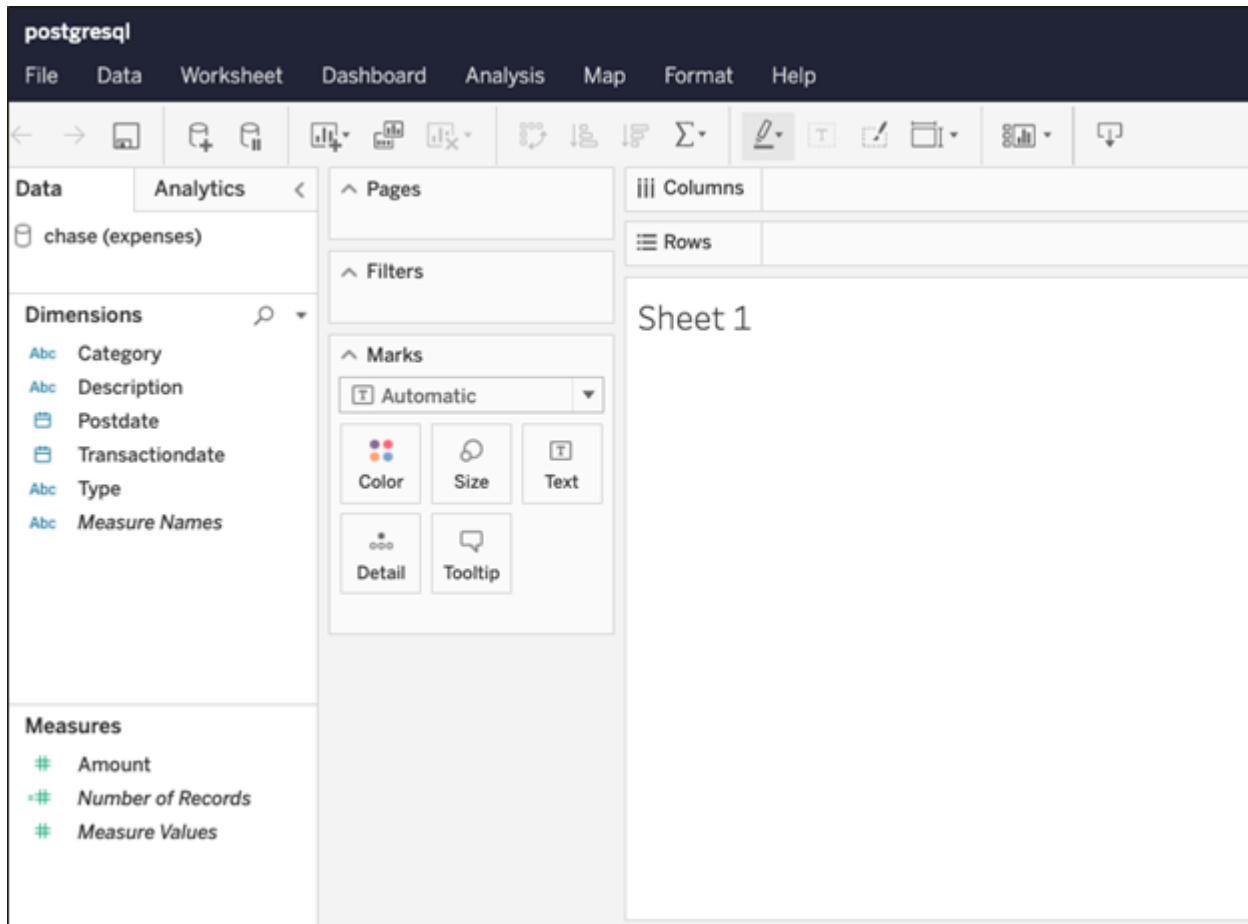
chase

Sort fields Data source order

chase Transactiondate	chase Postdate	chase Description	chase Category	chase Type	chase Amount
12/30/2019	12/31/2019	ELECTROLINE	Home	Sale	-361.38
12/29/2019	12/30/2019	MAVRIS LEATHER HOUSE	Shopping	Sale	-123.08
12/29/2019	12/30/2019	AZURE AZURE	Food & Drink	Sale	-22.83
12/28/2019	12/30/2019	SECOND CUP	Food & Drink	Sale	2.27

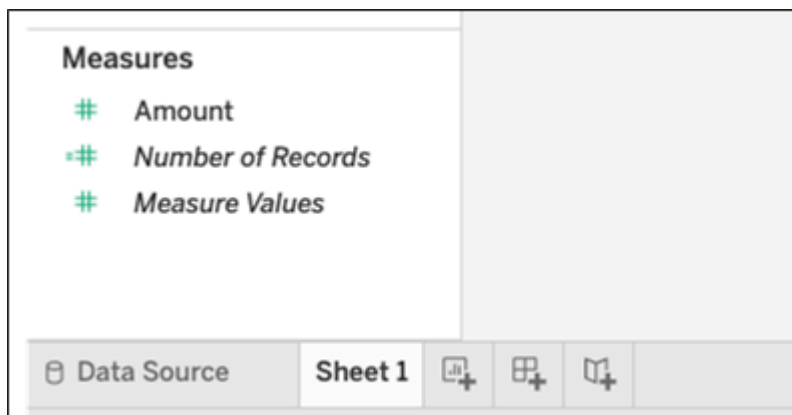
Save your work

as a **workbook** so that the worksheet (chart) editor will open:



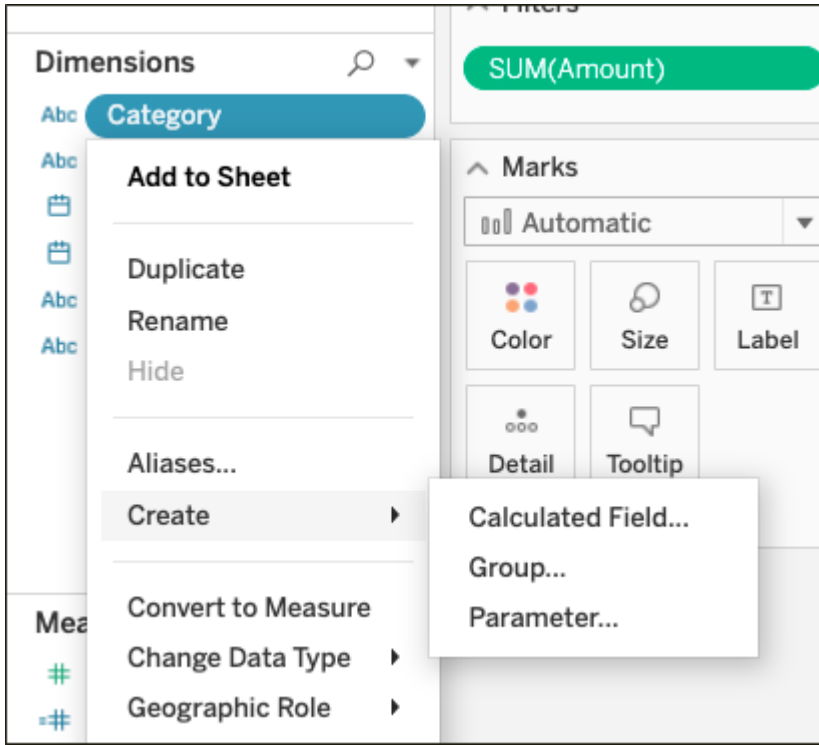
To get back to

the worksheet, notice the tabs at the bottom:

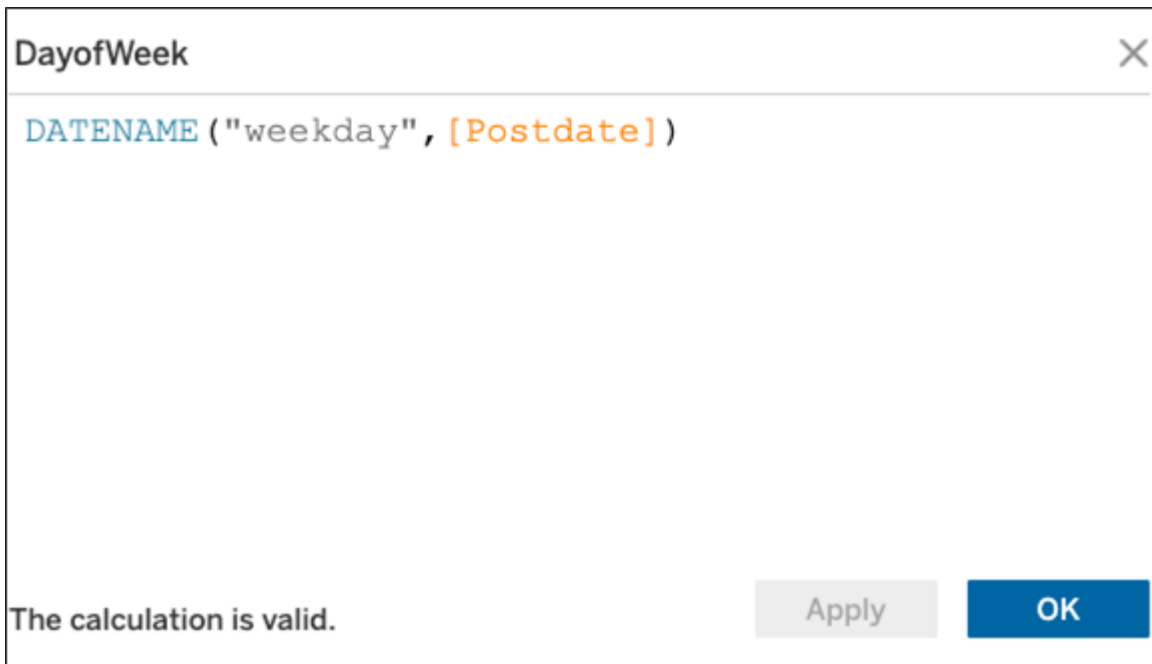


## Create a function

Let's create a function, which Tableau calls a Calculated Field. Click a field then click **Create Calculated Field** on the fields lists in the **Dimensions** panel.



When you type the first few letters, Tableau suggests function and field names. Put field names in brackets [] then assign some descriptive name at the top. Tableau will add that field to the dimensions panel so that you can chart it.



Here is the resulting chart:

Columns

SUM(Amount)

Rows

DayofWeek

### Expenses by Weekday

DayofWeek

