

# Connecting to your data

While using demo data during your onboarding process is great for learning and exploring the platform, nothing feels more real than using your own data in CARTO to create stunning maps, powerful analyses, and interactive applications.

The main way to use your own data in CARTO is to [connect CARTO to your data warehouse](#), but if you still don't have a data warehouse (or if you don't have your geospatial files there) you can also [import files from your computer or from a URL](#).

But first, let's dig in a little bit to understand what happens when you connect your data to CARTO.

## CARTO connectivity explained

The CARTO platform is cloud-native by design. This means that we will always query the live data in your data warehouse, and your data warehouse will return the results, removing the need for ETLs and other costly and inefficient systems. We never make a copy or store the data on our servers, which means:

- If you change the data in your data warehouse, your map will also reflect the changes (*except cached results*)
- If you add to or modify the data in your data warehouse, it will also be immediately available in CARTO for you to create maps, workflows, and more.

Because of this, CARTO allows for unparalleled performance and scalability.





Now that we've reviewed the meaning and benefits of going cloud-native, let's create your first live connection to your data.


## Creating your first connection

You can connect CARTO to your data in:

- **Google BigQuery**
- **Snowflake**



- **Amazon Redshift**
- **PostgreSQL**
- **Databricks** (*beta*)

 If you still don't use any of these data warehouses (or you aren't ready to connect just yet), you can skip this part and go directly to [Importing your first file](#).

Check out this video to learn how to create your first connection. The video shows a Google BigQuery connection, but the process is similar when connecting to other data warehouses. Each step is also explained in detail below the video:

00:51

▼ **Step 1: Go to Workspace > Connections and create a new connection**

Access your CARTO Workspace and click on Connections in the left menu. A list of your current connections will be shown, but since this is



your first time, it will only contain a connection to the CARTO Data Warehouse. Click on "**Create your first connection**" to get started.

### ✓ Step 2: Choose your Data Warehouse provider

As discussed, you can choose between any of the available data warehouses. Some of them will have an additional step to choose the *authentication method* you want to use to connect.

*For example, to connect to Google BigQuery you can choose between a "Service Account" or the "Sign in with Google" method.*

### ✓ Step 3: Finish the connection setup

Fill in the remaining fields to complete the connection. The information required is different depending on the data warehouse and the authentication method. Here you will find the full documentation for each option:

- [Connecting to Google BigQuery](#)
- [Connecting to Snowflake](#)
- [Connecting to Amazon Redshift](#)
- [Connecting to PostgreSQL](#)
- [Connecting to Databricks](#)

If your data warehouse requires you to whitelist incoming connections, here is a link to [our IP addresses to whitelist](#).

You will also have the option to share your connection. Connections are private by default, but you can consider [sharing your connection](#) if you want to collaborate with other users.

**Connections can be edited at any time**, so don't worry about other advanced fields for now. Later in your CARTO journey, you will learn




about the [Analytics Toolbox](#) (our set of native geospatial functions for your data warehouse) and other exciting features.

#### ✓ Step 4: Test your connection

Click on "Connect" and let CARTO test your connection:

- **✗ If unsuccessful:** You will stay on the connections creation page and the error will give you more details about what's wrong. If you need assistance, our [Support Team](#) will be happy to help. Some things you should check:
  - Look for typos and double-check the data in each field
    - Check that your data warehouse is up and running
    - Make sure you have permission to read and write data in your data warehouse
- **✓ If successful:** You will be redirected to the list of connections and you will see a new card with your connection details. Go back to this card at any time to edit or delete the connection.

 **Congratulations!** You have now connected your data to CARTO. A quick way to test and explore this data is to open the [Data Explorer](#) and list tables coming from your data warehouse. If you click on a table you will immediately see metadata and a map preview. From here, you can start your next geospatial project!

## Importing your first file

If your geospatial data is not yet in the cloud, CARTO can help you import it. There are many solutions to move data to the cloud data warehouses, but not many support geospatial formats, so let's take advantage of the CARTO platform.

Check out this video to learn how to import your first file. Each step is explained below the video:



00:59

### ✓ Step 1: Prepare your data

Before you start with your data import process, please make sure you've checked the [import requirements](#). A few additional best practices:

- We recommend you give the name `geom` to the column containing the geometries for maximum compatibility.
- Check that your geometry data does not contain [invalid geometries](#). These will be skipped in most cases, up to a certain threshold (see [error tolerance](#)), but could also cause the import process to fail.

### ✓ Step 2: Go to Data Explorer and start importing data

Now that your data is ready, access your CARTO Workspace and click on Data Explorer in the left menu. Once there, click the "*Import data*" button in the top-right corner of the screen. Let's start our import process!



### ✓ Step 3: Choose a file, a name, and a destination

There are two possible sources for your file:

- **A local file on your computer:** Click 'Browse' and select a file from your computer.
- **A file coming from a public URL:** Alternatively, you can provide the URL to the file. This URL must be publicly accessible by anyone on the internet. Please remember that CARTO won't sync this URL, it's a one-time import to your data warehouse.

Now click "Continue" and you will see two settings:

1. First, check and customize the **"Imported table name"**. This is the name of the table that we will create with your data.
2. Next, navigate through your connections to **select a destination** (i.e. a location in your data warehouse) where we will create the new table with the imported data.

If you're new to CARTO and you don't have any connections of your own, a safe way to get started is to import data into

CARTO Data Warehouse > organization data > shared . Here you can [learn more about the CARTO Data Warehouse](#).

Once you're ready, click "*Save here*" to continue.

### ✓ Step 4: Choose a schema strategy

When importing your data, it's necessary to assign a valid data type ( `STRING` , `NUMBER` , etc. ) to each column, and these data types need to match those in the destination data warehouse. For example: `VARCHAR` is valid in Snowflake, but not in Google BigQuery. The combined structure of columns and their data types is called **schema**.

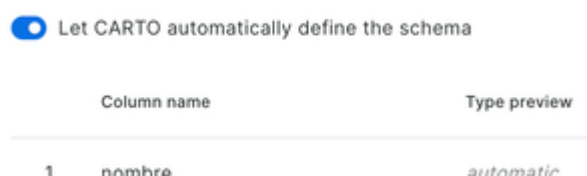
There are two strategies for the schema:

- **Let CARTO automatically define the schema:** CARTO will read your table and guess the schema based on the data.



- **Customize the schema manually:** You will see a preview, and you can customize the data type for each column. Read more about [customizing the schema](#).

For this guide, let CARTO automatically set the schema - it works well in most cases. Click "*Continue*".



#### ✓ Step 5: Confirm and let CARTO take care of the import process

On the next screen, you will see a summary of your import, including the name of the file, the desired destination and table name, and the schema strategy.


If everything looks okay, click "**Import**" and CARTO will start importing your file.


While importing your file, a progress bar will appear. You can minimize this window and the process will continue to run in the background, even if you close the browser tab. Some tips to understand this process:

- The larger the file, the longer the import will take. A 1 GB file could take up to a few minutes.
- If there are rows with errors (*e.g. invalid geometries, invalid values for a column, etc.*), the process will continue without those rows until a certain threshold. Learn more about [error tolerance when importing files](#).
- Finally, if there are too many errors or there's a major problem, an **error block** ❌ will appear with further details on why this import failed. If you need assistance, please contact our [Support Team](#).

#### ✓ Step 6: Use your imported data



Once the import process is finished, you can click on the "*Imported Successfully*  " block and it will redirect you to the Data Explorer, with that file opened. You can go back to this file at any time - it's already stored in your data warehouse!

 **Congratulations!** From this page (which includes a map preview and a data preview), you can start creating maps and workflows.

## Next steps

Your data is now in CARTO! This is a major step toward unlocking all the potential that the platform has to offer. Using this data, there are a few options for what to do next:

1. Create a stunning map using [CARTO Builder](#), our map-making tool.
2. Use [CARTO Workflows](#) to visually build a geospatial analysis block by block, with your data as a starting point or an input, with no coding skills required.
3. Use this data in a [simple public application created with CARTO + deck.gl](#).