Heroku + Data Cloud
Hands-on-Lab (HOL)/Workshop

INTRODUCTION

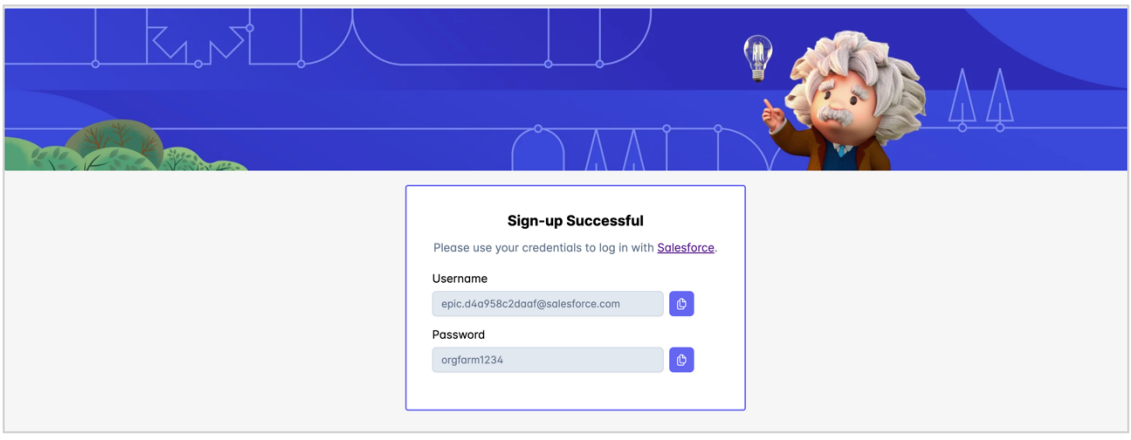
In this hands-on lab, you will learn how to connect your Heroku Postgres database to Salesforce Data Cloud, ingest data from a sample table, configure data actions that trigger webhooks, and verify that everything is working end-to-end. This lab will simulate how customer data flows from Heroku Postgres to Data Cloud, and how events can trigger external systems through webhooks.

OVERVIEW OF THE LAB FLOW

- Establish a connection to your Data Cloud environment
- Set up the Heroku Postgres Connector for Data Cloud
- Synchronize sample data from Heroku Postgres to Data Cloud
- Set up a Data Action to send a message to a Heroku Webhook based on Data Cloud Events
- Verify & View the Data Action Event within the Webhook Event Viewer
- Ingest a new record from Heroku Postgres, watch it sync to Data Cloud
- Watch the Data Cloud Data Action event fire to the Heroku Webhook
- Watch the Webhook Viewer as events flow
- Think about how you might build rich, event-driven Heroku Apps that leverage Data Cloud

PREREQUISITES

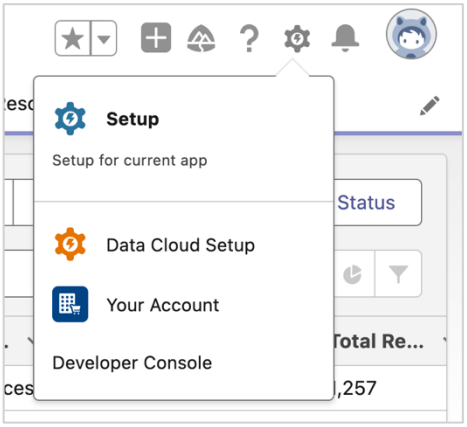
- Access to Salesforce Data Cloud
  - **Salesforce OrgFarm Data Cloud Orgs**
  - Event Code: 9osb2P
  - Event Name: Dreamforce 2024 - Rid 64
  - Signup Form: http://sfdc.co/OrgFarmSignup
    - You will receive a confirmation that looks as follows:



- Heroku Postgres database with credentials (provided for you below)
- Webhook URL for testing: https://webhook.herokudemos.com
- Completed the Login set up to your Salesforce Data Cloud instance (via email or above)

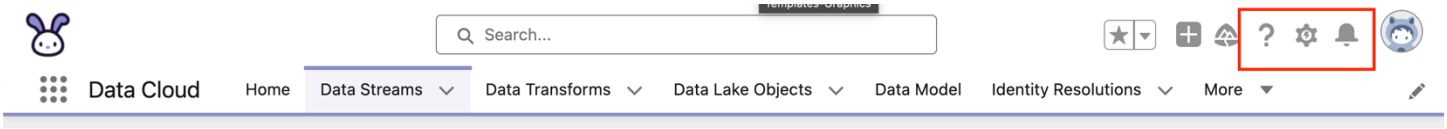
STEP 1: *LOG INTO DATA CLOUD->SETUP*

- You should have received an email welcoming you to your Data Cloud instance, with instructions on how to verify and set up your login
- Log into your Data Cloud instance



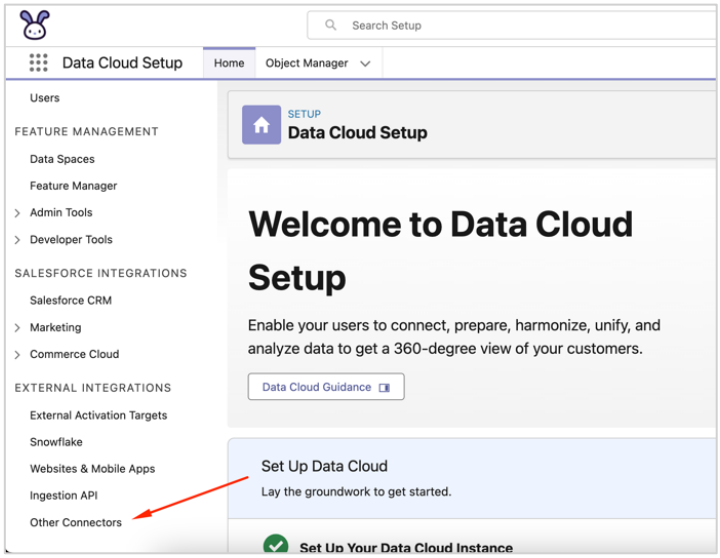
- Click the GEAR icon, Top Right of your environment

- Click Data Cloud Setup

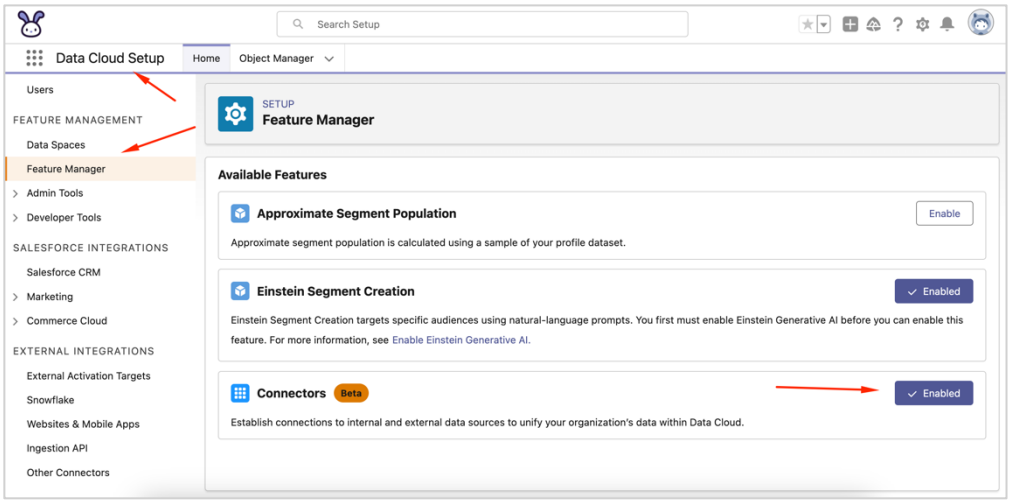


STEP 2: *CONFIGURE YOUR HEROKU POSTGRES CONNECTOR*

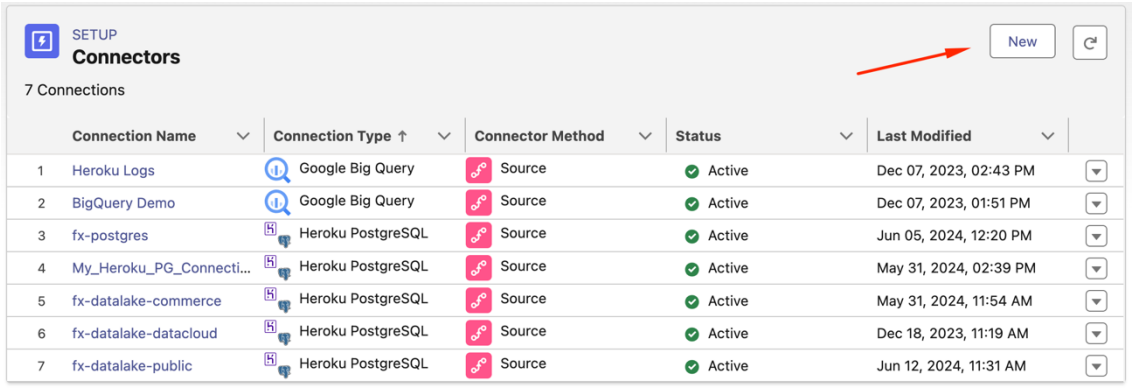
- On the left side panel, scroll to the bottom and select **OTHER CONNECTORS**



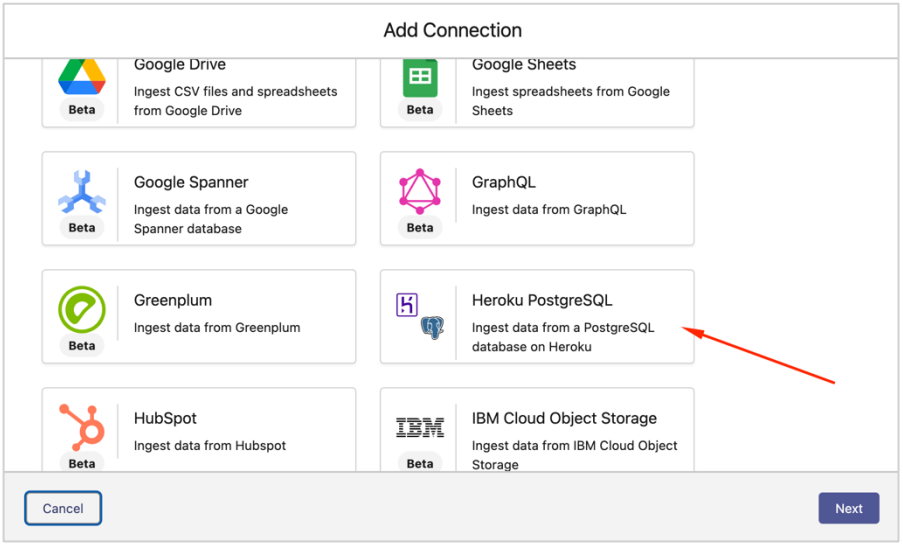
- If required, you may need to enable **Additional Connectors**. To do this, go to **Setup->Search->Feature Manager** and Enable **“Connectors Beta”**



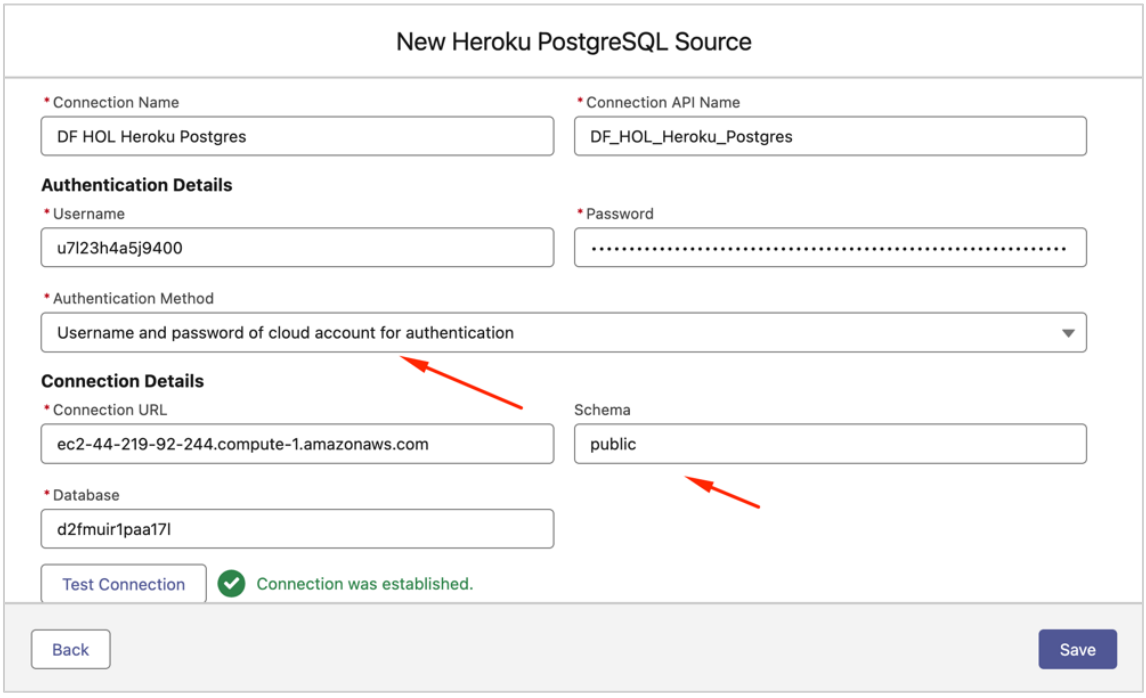
- On the Other Connectors screen, click **New**



- On the **Add Connection** screen, find **Heroku Postgres** and click **Next**



- On the **New Heroku PostgreSQL Source** screen, fill in each property using the **Connection Details** listed below. Be sure to select **"Username and password of cloud account for authentication"** NOT "Mutual TLS based authentication"
- **Heroku Postgres Database Connection Details**

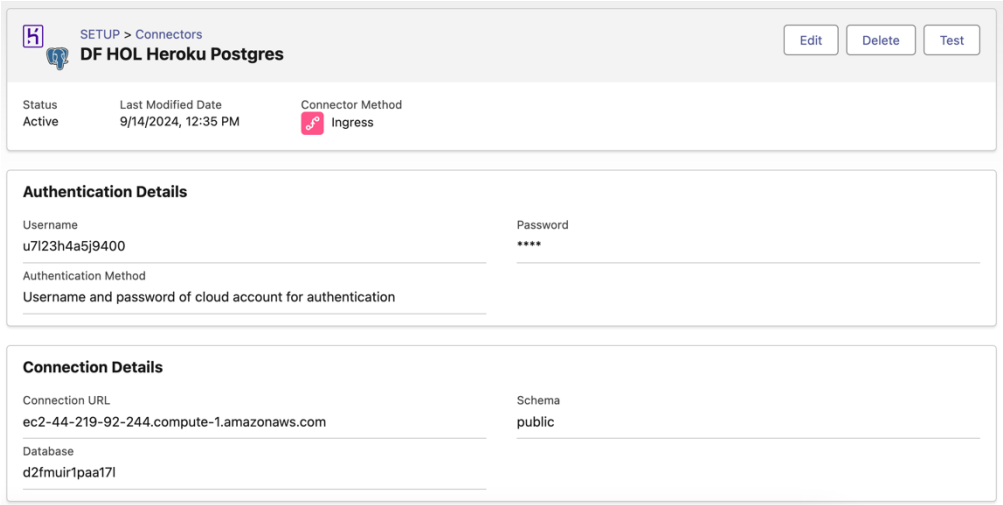


- **DATABASE_URL:** postgres://u7l23h4a5j9400:p010763123fb8e1a4ca577dc0a094b9bf2c2e9775e1291fa16a4a374181ec7b93@ec2-44-219-92-244.compute-1.amazonaws.com:5432/d2fmuir1paa17l

    - **Connection Name:** give it any name you'd like
    - **Connection API Name:** this will auto-populate
    - **Username:** u7l23h4a5j9400

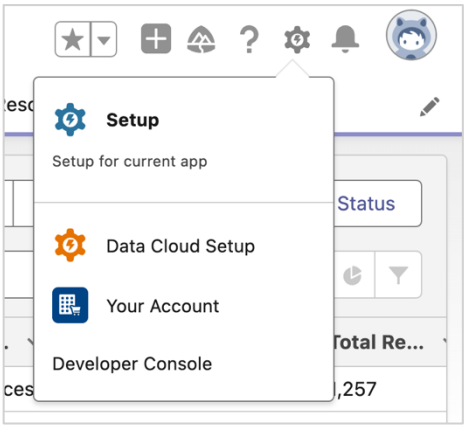
- **Password:** p010763123fb8e1a4ca577dc0a094b9bf2c2e9775e1291fa16a4a374181ec7b93
- **Server Name:** ec2-44-219-92-244.compute-1.amazonaws.com
- **Port:** 5432
- **Database:** d2fmuir1paa17l
- **Schema:** public
- **Table:** dreamforce_hol

- Click **Test** to verify the connection works as desired before moving on
- Assuming all goes well, click **Save**



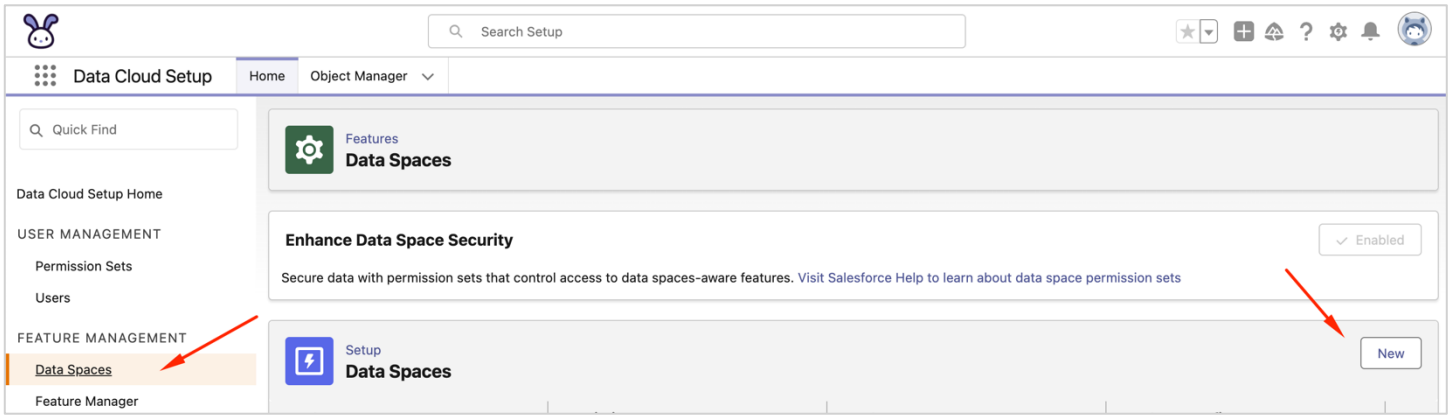
STEP 3: CONFIRM/CREATE A DATA SPACE

- Click **Data Cloud Setup**



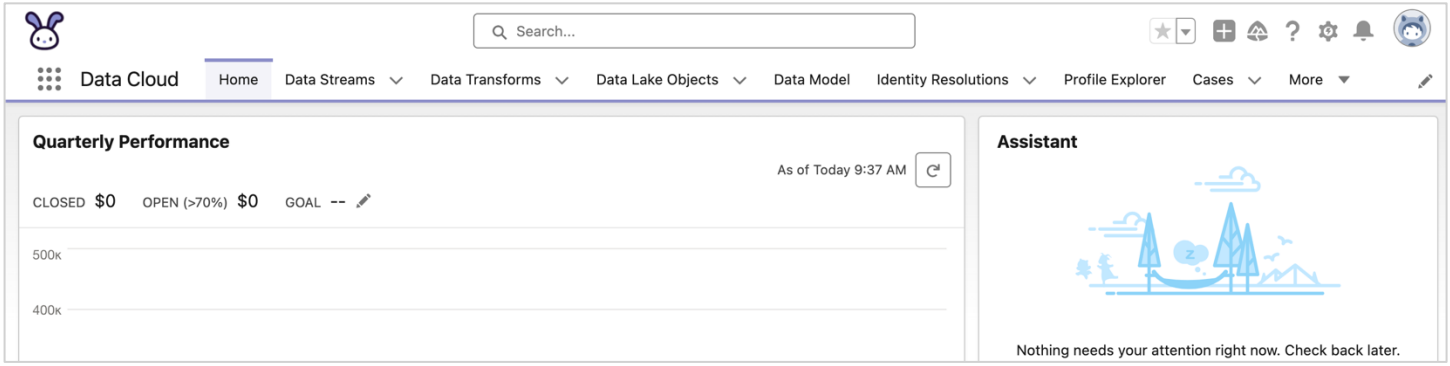
- Click **Data Spaces**

- If you do not have a **Default Data Space** present (the name does not matter), then simply click **New** to create a New Data Space

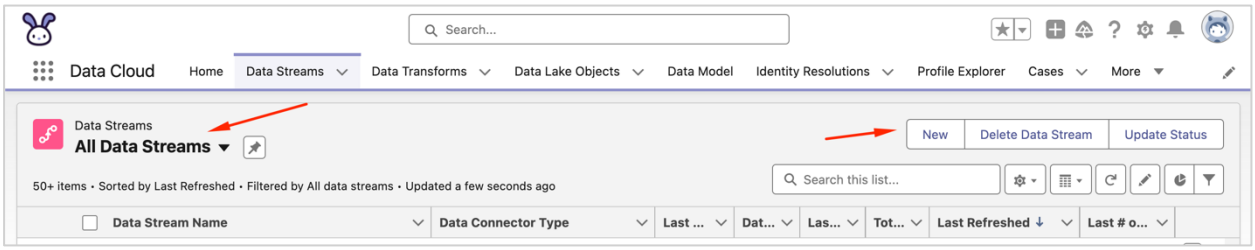


STEP 4: *CONFIGURE YOUR DATA CLOUD DATA STREAM INGESTION*

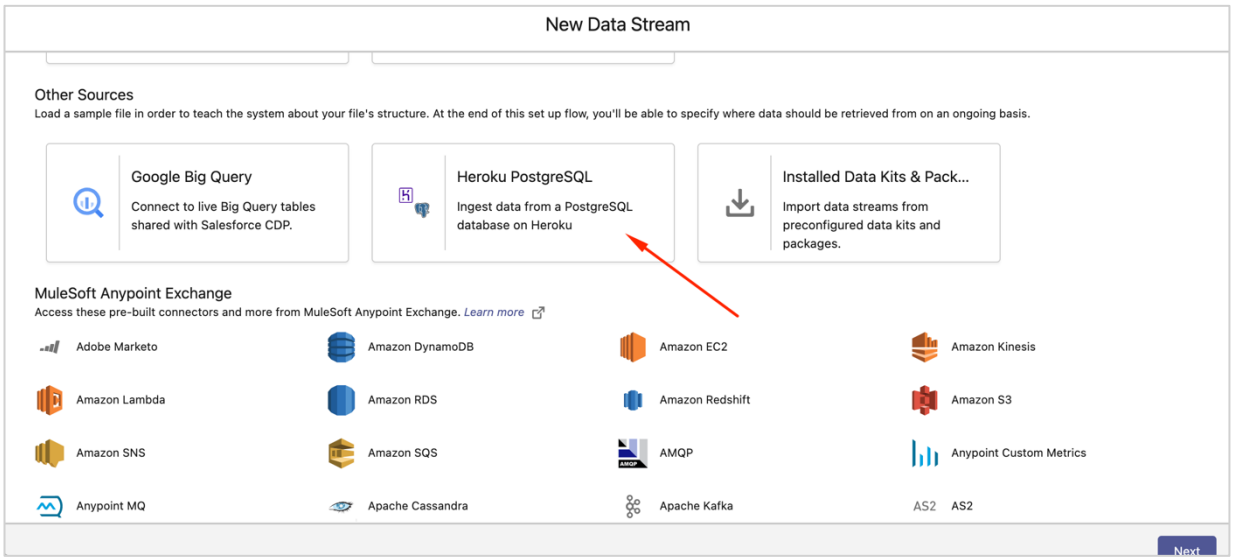
- Exit out of **Data Cloud Setup** and return to the main Data Cloud **Home** tab within the Data Cloud Application



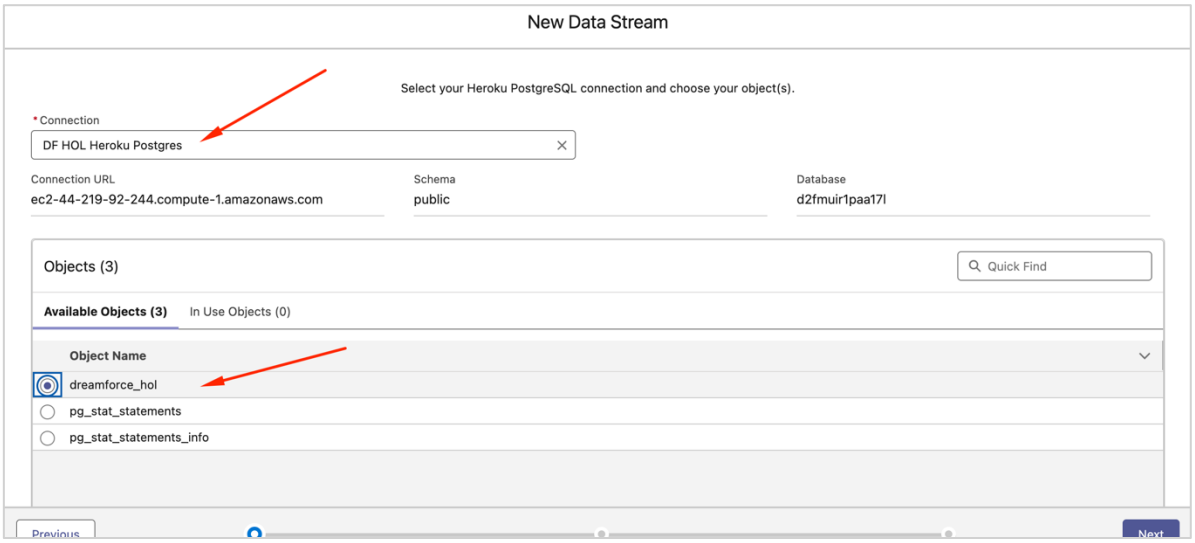
- Click **Data Streams** from the top Tab bar, then select "**Recently Viewed**" (if applicable) and select **All Data Streams** to ensure you are seeing all available Data Streams (you may repeat this step in the future if you cannot see a created Data Stream for some reason)
- Click **New** to create a **New Data Stream**



- In the **New Data Stream** popup, select **Heroku PostgreSQL** and click **Next**

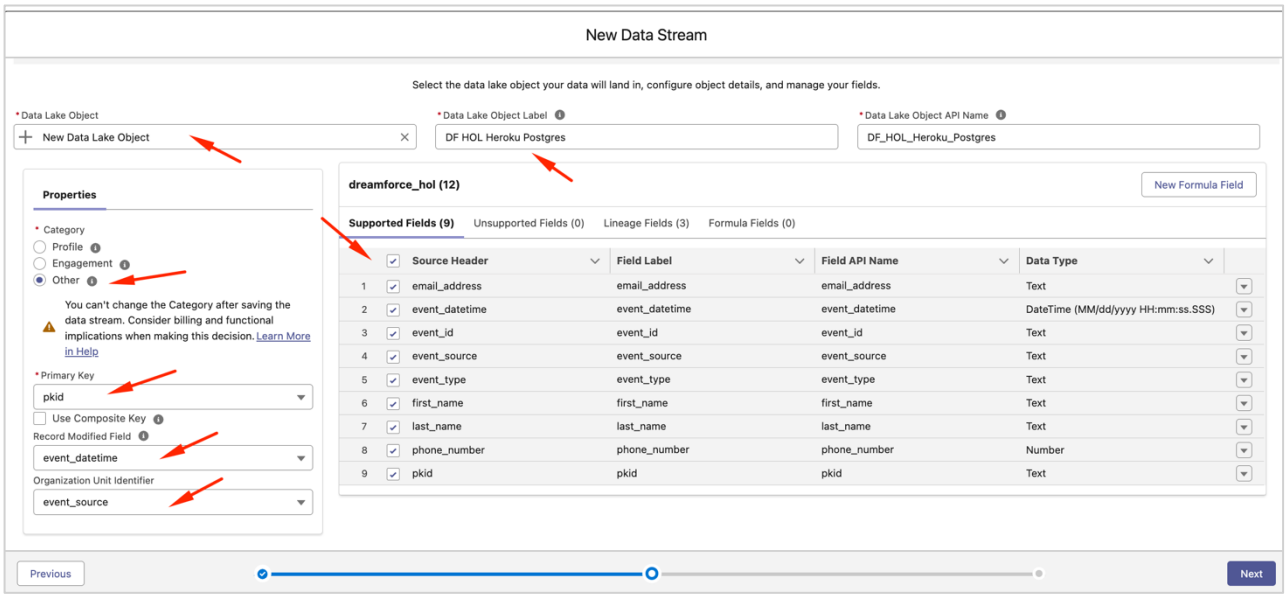


- Click the **Connection** drop-down and select the name of the **Heroku PostgreSQL Connection** you created in **Data Cloud Setup** previously
- Click the "**dreamforce_hol**" Object from the **Available Objects** list

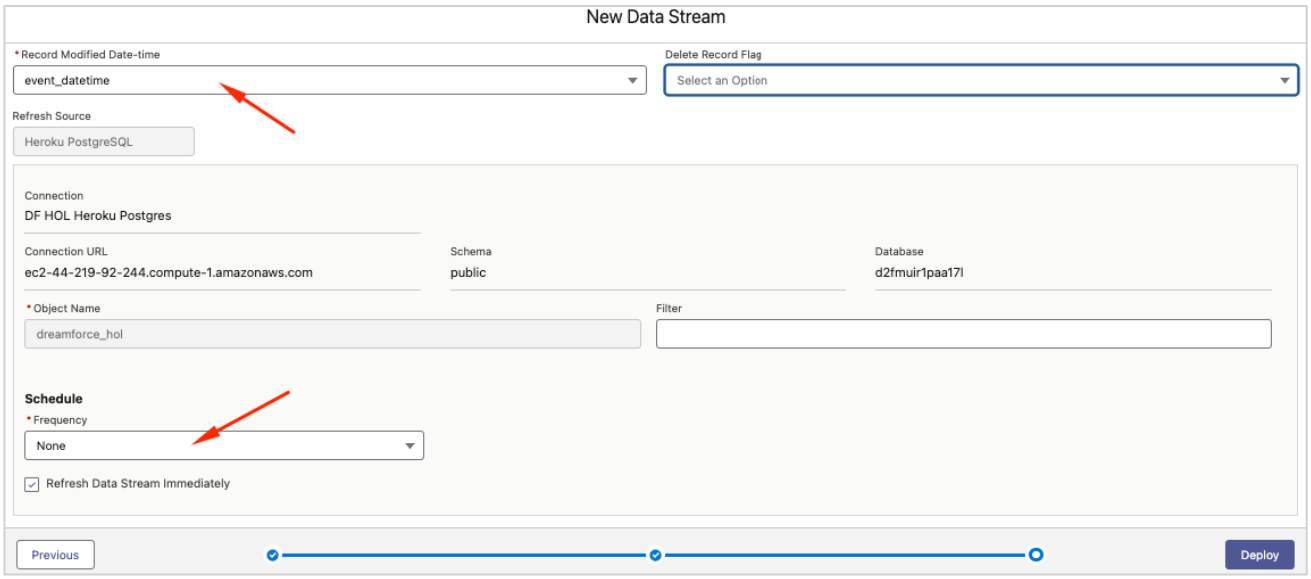


- On the next New Data Stream page, configure your screen as follows:
  - **Data Lake Object**: New Data Lake Object
  - **Data Lake Object Label**: DF HOL Heroku Postgres
  - **Properties**:
    - **Category**: Other
    - **Primary Key**: select "**pkid**" from the list of fields
    - **Record Modified Field**: select "**event_datetime**" from the list of fields
    - **Organizational Unit Identifier**: select "**event_source**" from the list

- **Supported Fields**: select **all** to include all fields in the Data Stream



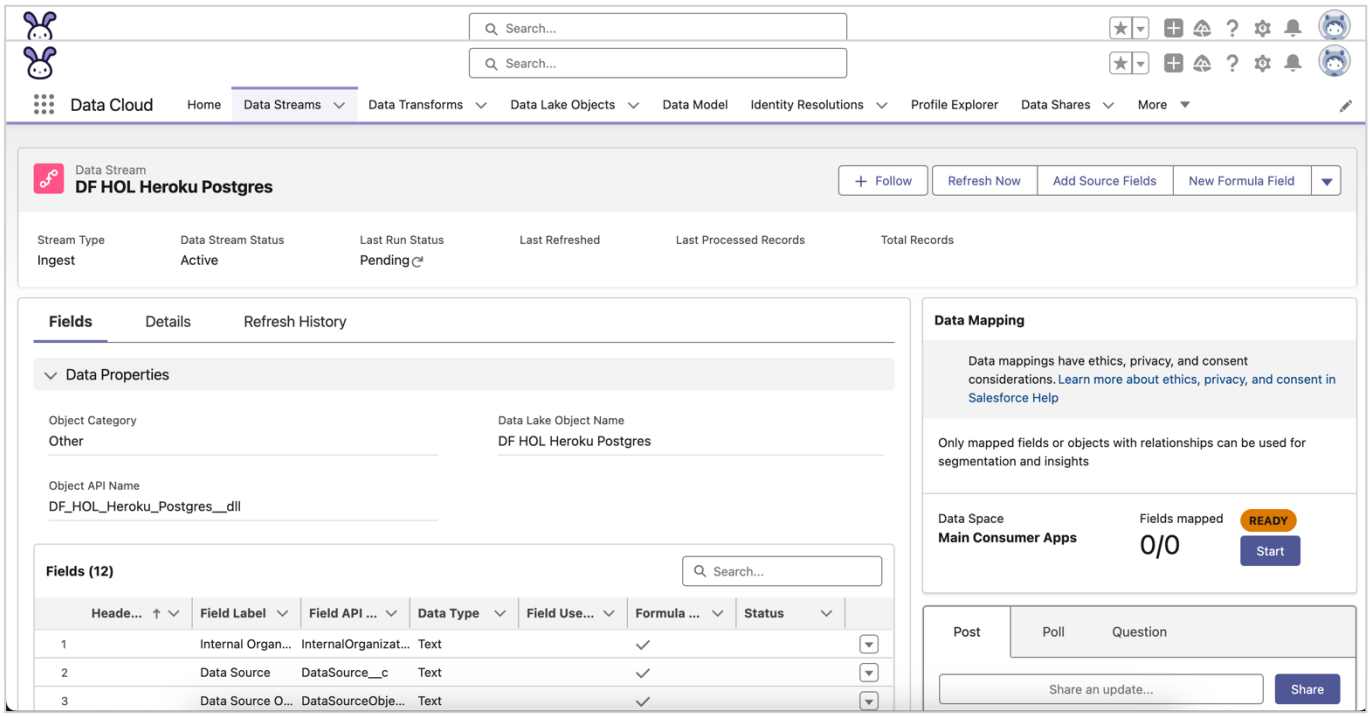
- On the final screen, ensure the **Data Stream Name** is correct, select the **Default Data Space** (or one you created) is selected
- Select **Incremental** for **Refresh Mode**
- Ensure **“event_datetime”** is still selected for **Record Modified Date-time**
- Leave all other fields alone including **Schedule->Frequency** which should remain at **None**



STEP 5: *VERIFY YOUR HEROKU POSTGRES DATA STREAM*

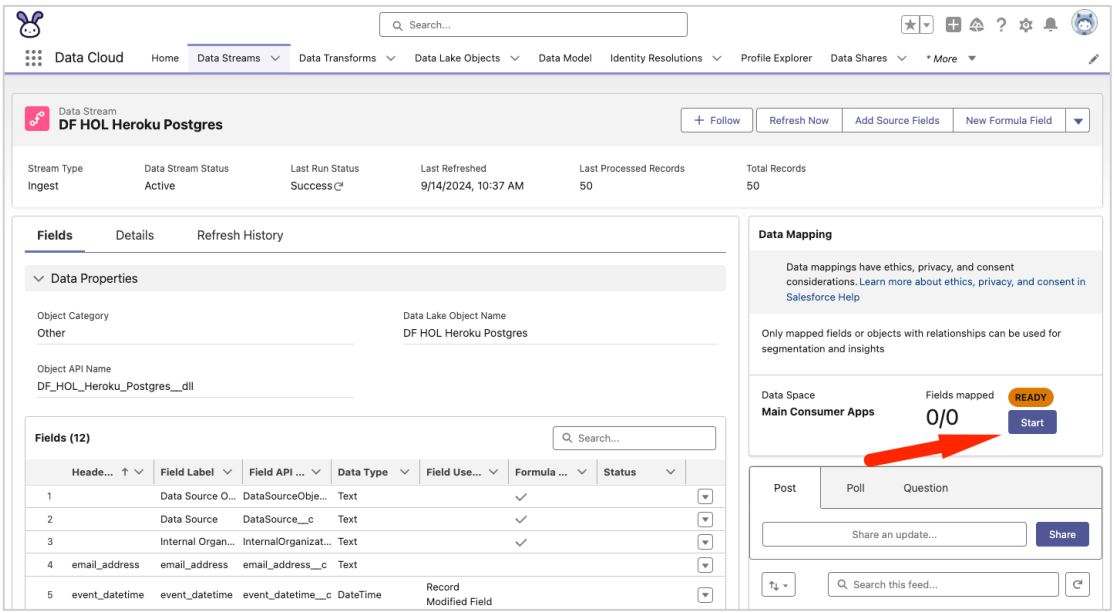
- Go back to the **Data Stream** tab on the Data Cloud application

- Verify your Heroku Postgres Data Stream is saved and the **Last Run Status** shows either **Pending** or **Success**



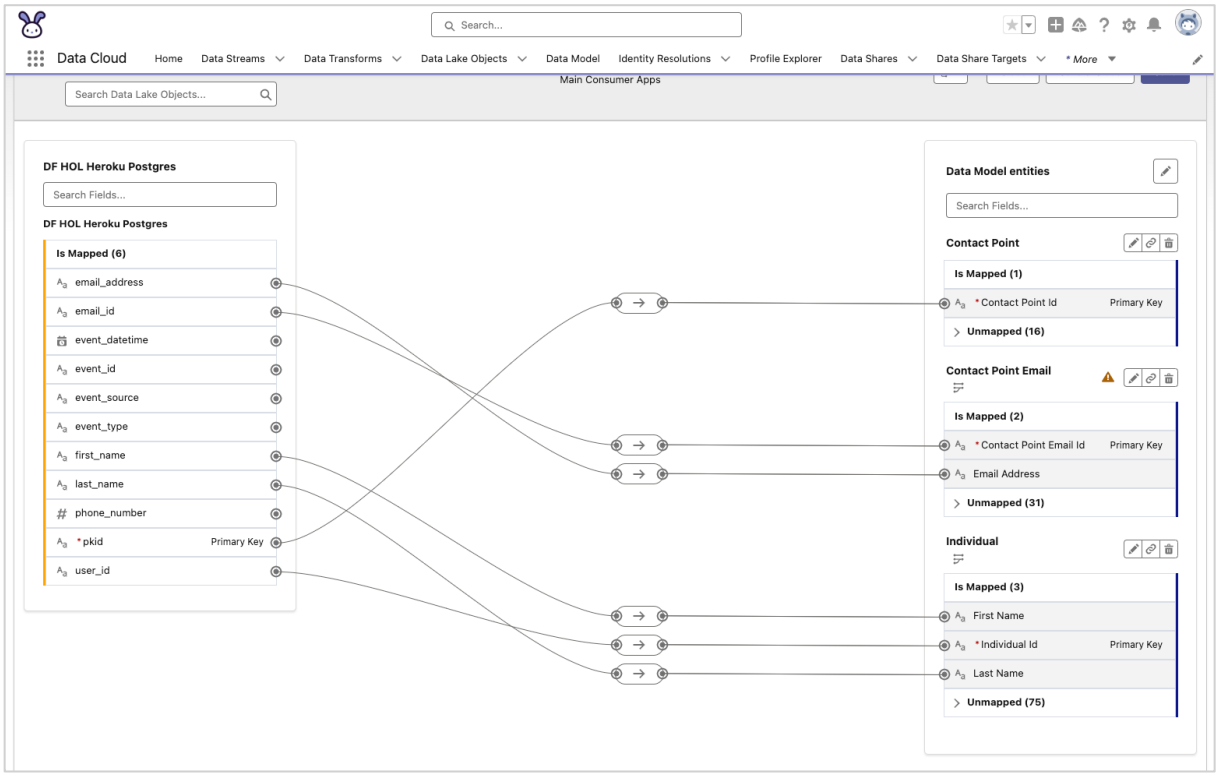
STEP 6: *MAP THE DATA STREAM TO THE DATA MODEL*

- From within the **Data Cloud App**, click **Data Streams** and locate your Heroku Postgres Data Stream
- On the right side, under **Data Mapping**, click **Start**



- On the right side, under Data Model entities, click Select Objects and select the following:

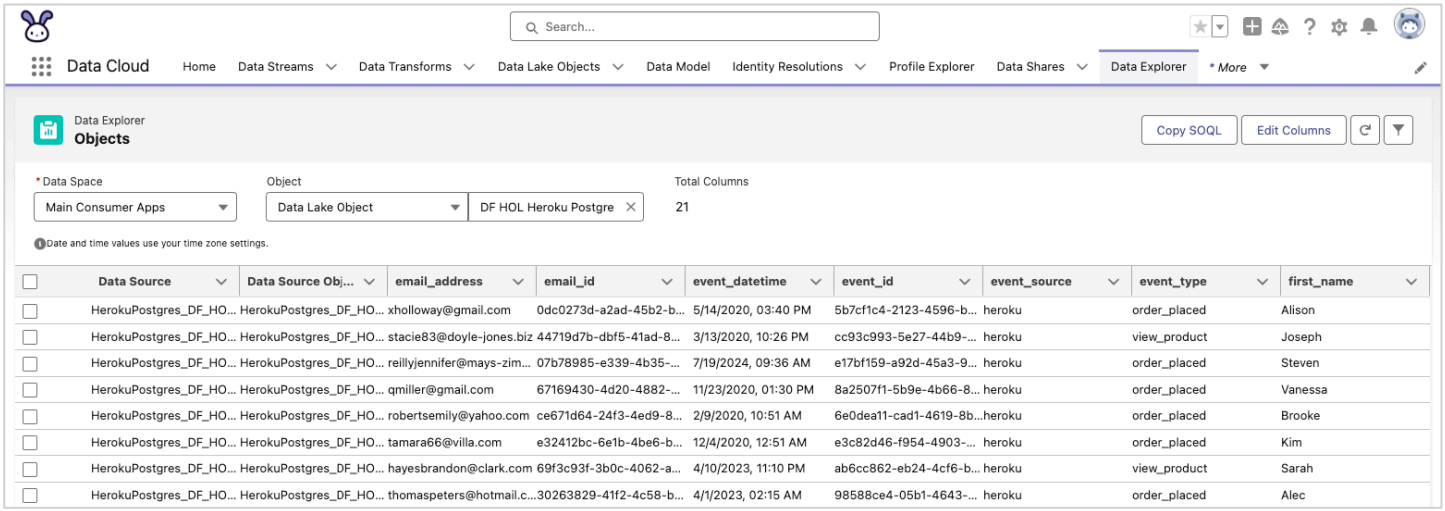
- **Individual**
- **Contact Point**
- **Contact Point Email**
- You'll notice some of the fields, like **Email Address**, automatically are mapped for you
- Map the following fields and then hit **Save**:
    - pkid -> Individual.Individual ID
    - email_id -> Contact Point Email Id
    - user_id -> Individual.Individual ID



STEP 7: *VERIFY THE DATA FROM HEROKU POSTGRES HAS BEEN INGESTED*

- Click on **Data Explorer** on the Top Menu
- Select your **Data Space** -> Select **Data Lake Object** -> Select your **Heroku Postgres Data Stream Name**

- You should now see all rows that have been ingested from Heroku Postgres via the Heroku Postgres for Data Cloud Connector



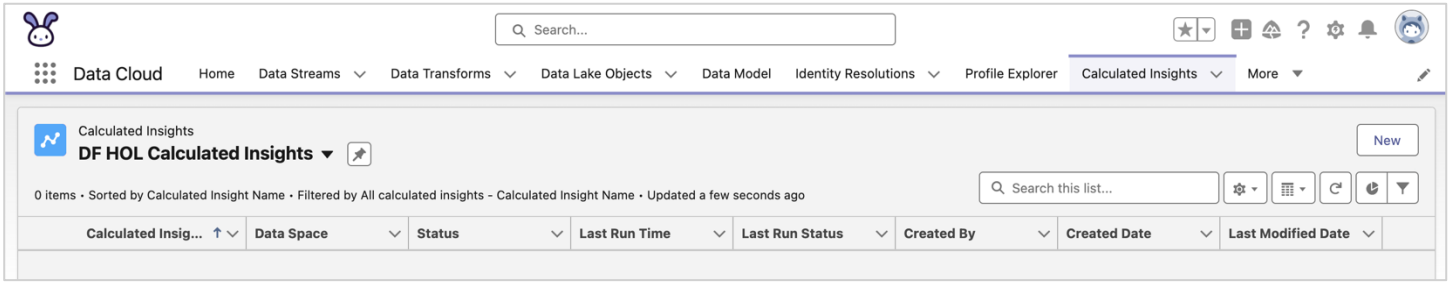
Data Source	Data Source Obj...	email_address	email_id	event_datetime	event_id	event_source	event_type	first_name
HerokuPostgres_DF_HO...	HerokuPostgres_DF_HO...	xholloway@gmail.com	0dc0273d-a2ad-45b2-b...	5/14/2020, 03:40 PM	5b7cf1c4-2123-4596-b...	heroku	order_placed	Alison
HerokuPostgres_DF_HO...	HerokuPostgres_DF_HO...	stacie83@doyle-jones.biz	44719d7b-dbf5-41ad-8...	3/13/2020, 10:26 PM	cc93c993-5e27-44b9-...	heroku	view_product	Joseph
HerokuPostgres_DF_HO...	HerokuPostgres_DF_HO...	reillyjennifer@mays-zim...	07b78985-e339-4b35-...	7/19/2024, 09:36 AM	e17bf159-a92d-45a3-9...	heroku	order_placed	Steven
HerokuPostgres_DF_HO...	HerokuPostgres_DF_HO...	qmiller@gmail.com	67169430-4d20-4882-...	11/23/2020, 01:30 PM	8a2507f1-5b9e-4b66-8...	heroku	order_placed	Vanessa
HerokuPostgres_DF_HO...	HerokuPostgres_DF_HO...	robertsemily@yahoo.com	ce671d64-24f3-4ed9-8...	2/9/2020, 10:51 AM	6e0dea11-cad1-4619-8b...	heroku	order_placed	Brooke
HerokuPostgres_DF_HO...	HerokuPostgres_DF_HO...	tamara66@villa.com	e32412bc-6e1b-4be6-b...	12/4/2020, 12:51 AM	e3c82d46-f954-4903-...	heroku	order_placed	Kim
HerokuPostgres_DF_HO...	HerokuPostgres_DF_HO...	hayesbrandon@clark.com	69f3c93f-3b0c-4062-a...	4/10/2023, 11:10 PM	ab6cc862-eb24-4cf6-b...	heroku	view_product	Sarah
HerokuPostgres_DF_HO...	HerokuPostgres_DF_HO...	thomaspeters@hotmail.c...	30263829-41f2-4c58-b...	4/1/2023, 02:15 AM	98588ce4-05b1-4643-...	heroku	order_placed	Alec

STEP 8: *CREATE A CALCULATED INSIGHT*

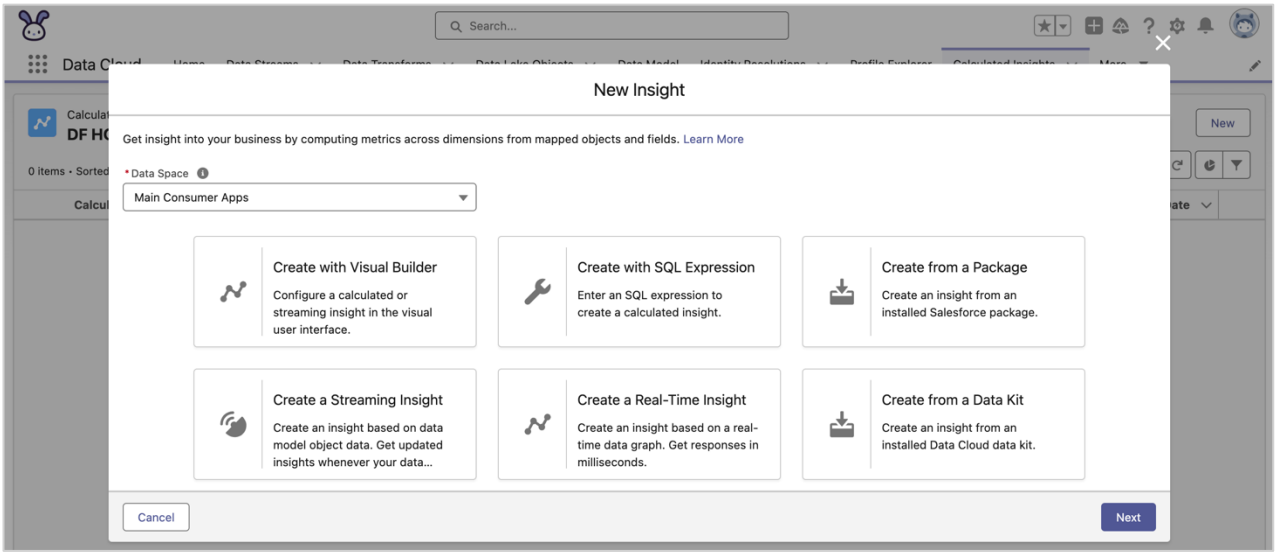
For this exercise, we'll create a Calculated Insight that we will then use to trigger a Data Action when the value changes. The full sequence will look something like:

Data is synchronized from Postgres->Calculated Insight value changes->Data Action fires

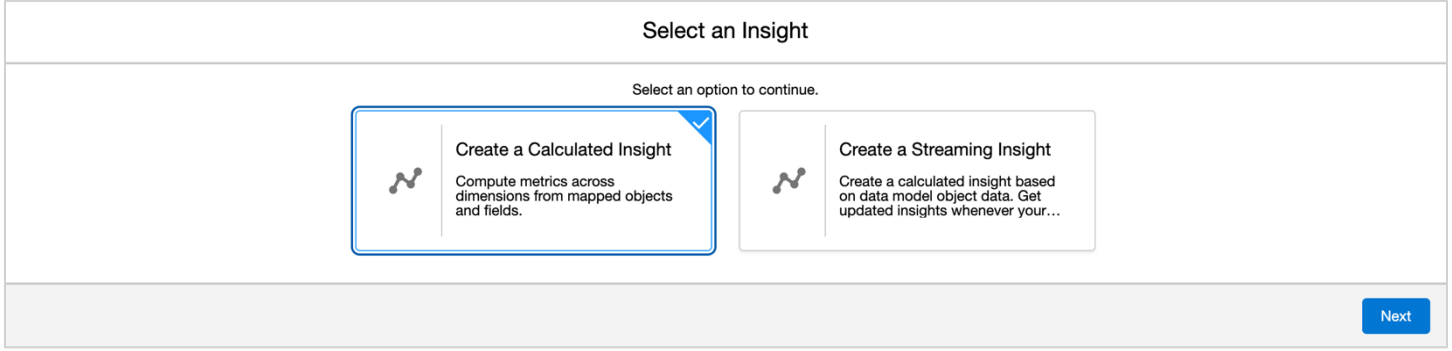
- Click **Calculated Insights** from the **Data Cloud App** Top Tab



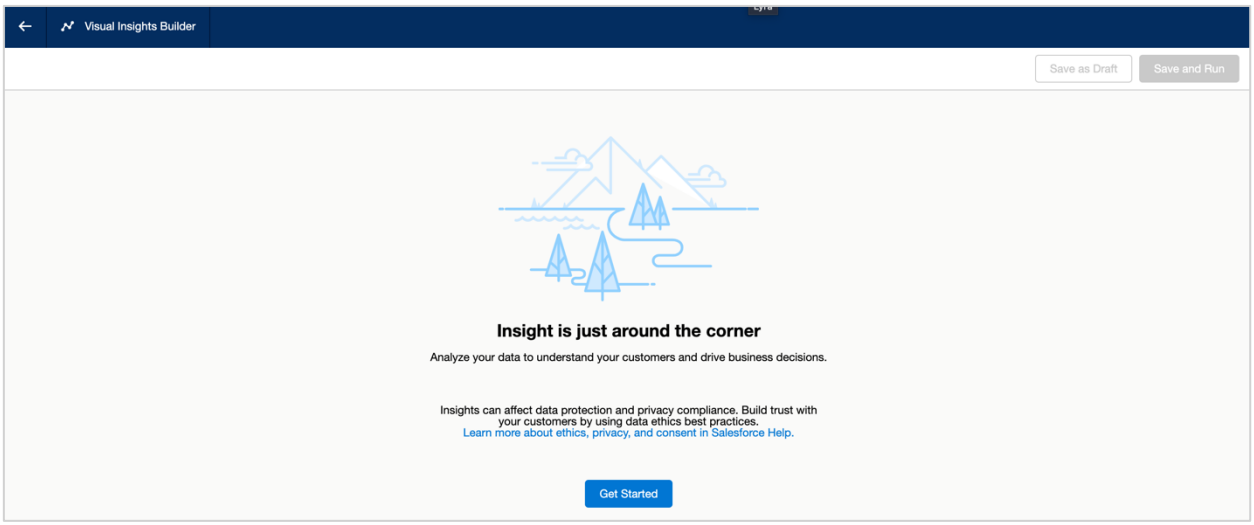
- Click **New**
- Select your **Data Space**



- Click **Create a Calculated Insight** and click **Next**

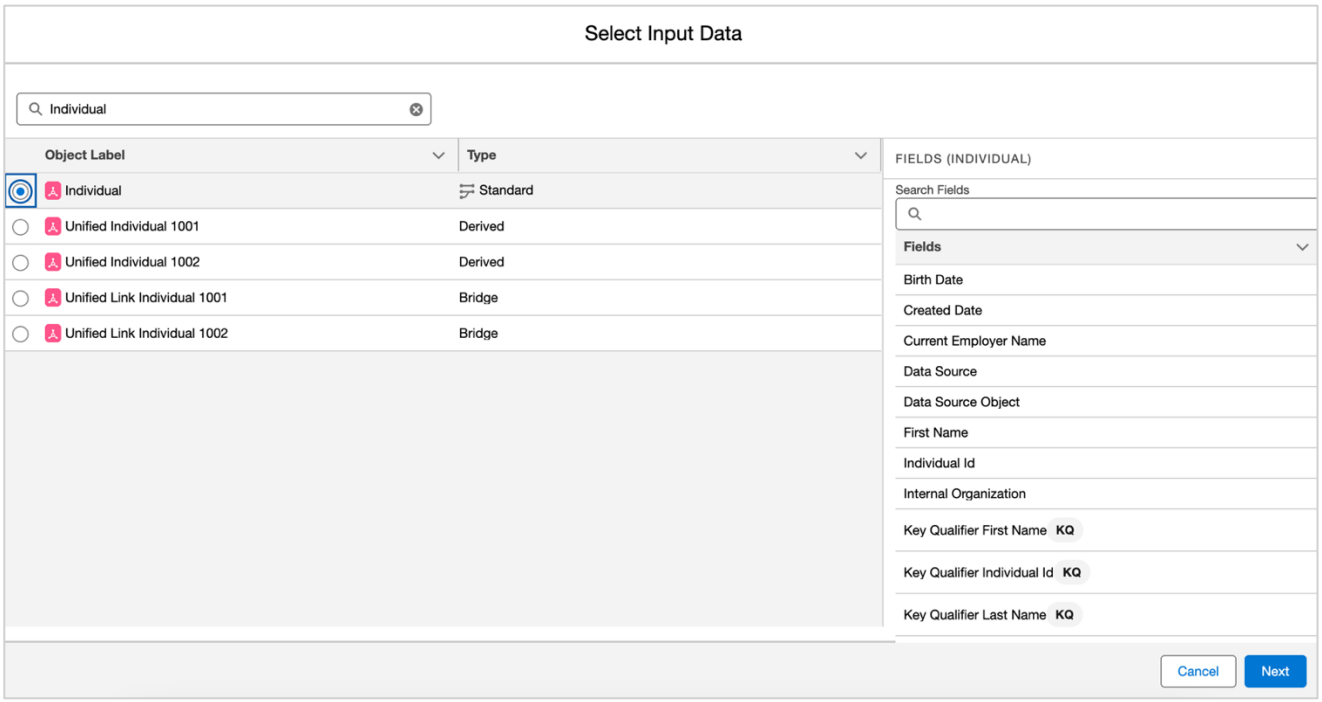


- Select **Create with Visual Builder**



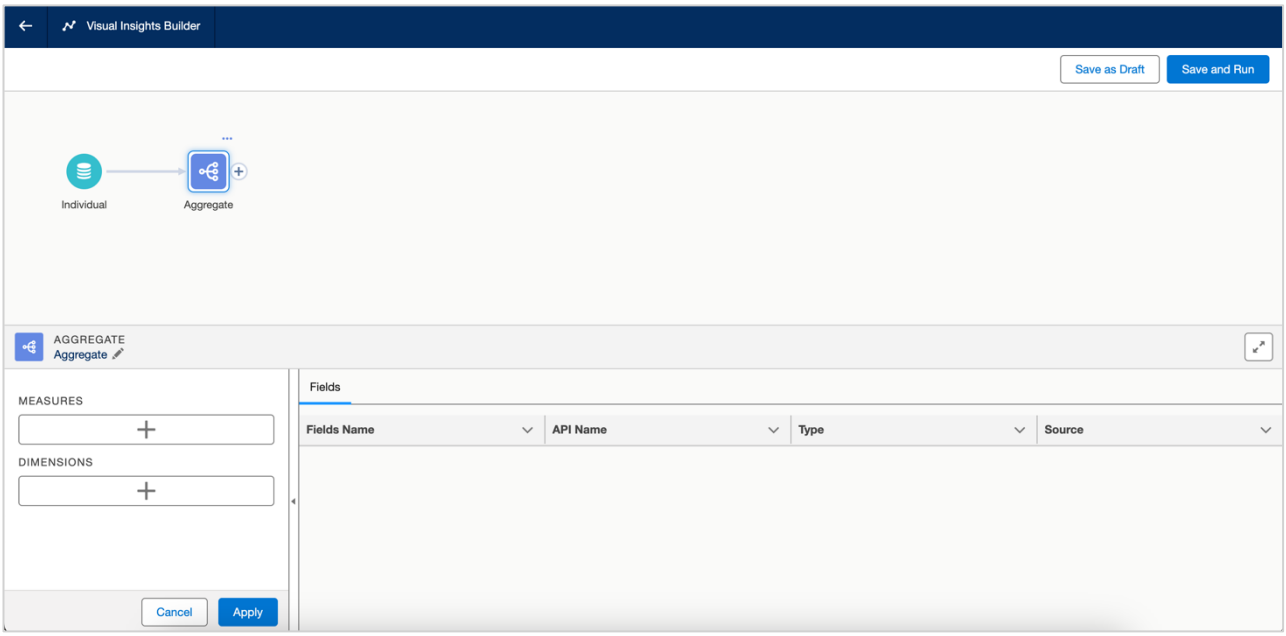
- Click **Get Started**

- Search for **Individual** in the search box and select it

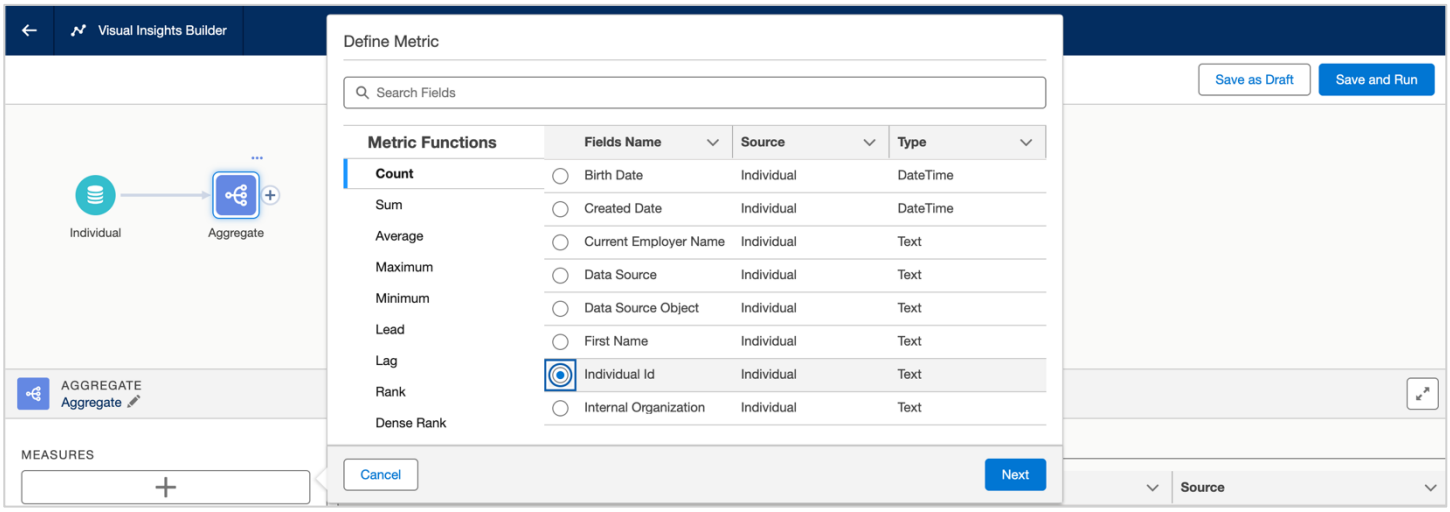


- Click the + sign next to the **Individual** icon

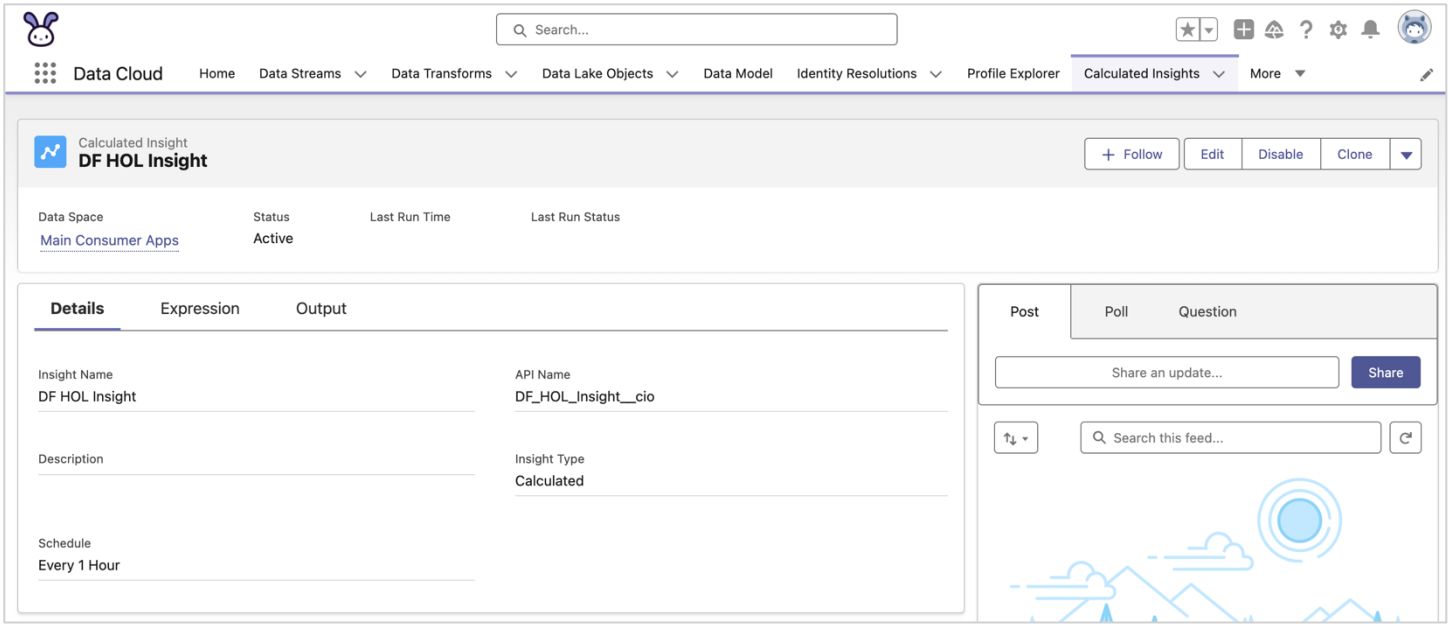
- Click **Aggregate**



- Click **Measures** and Select **COUNT** from the list of **METRIC FUNCTIONS,** Click Next
- Select **Individual ID** from the list of fields



- When asked, give your Metric a name, something like **Count of Heroku Postgres Records**
- Click **Apply**
- Click **Save and Run**
- When prompted, give your Insight a name, something like **DF HOL Insight**
- For the Schedule, select **Every 1 Hour**
- Click **Enable**
- Your **Calculated Insight** will now be ready for us to use in the next Step

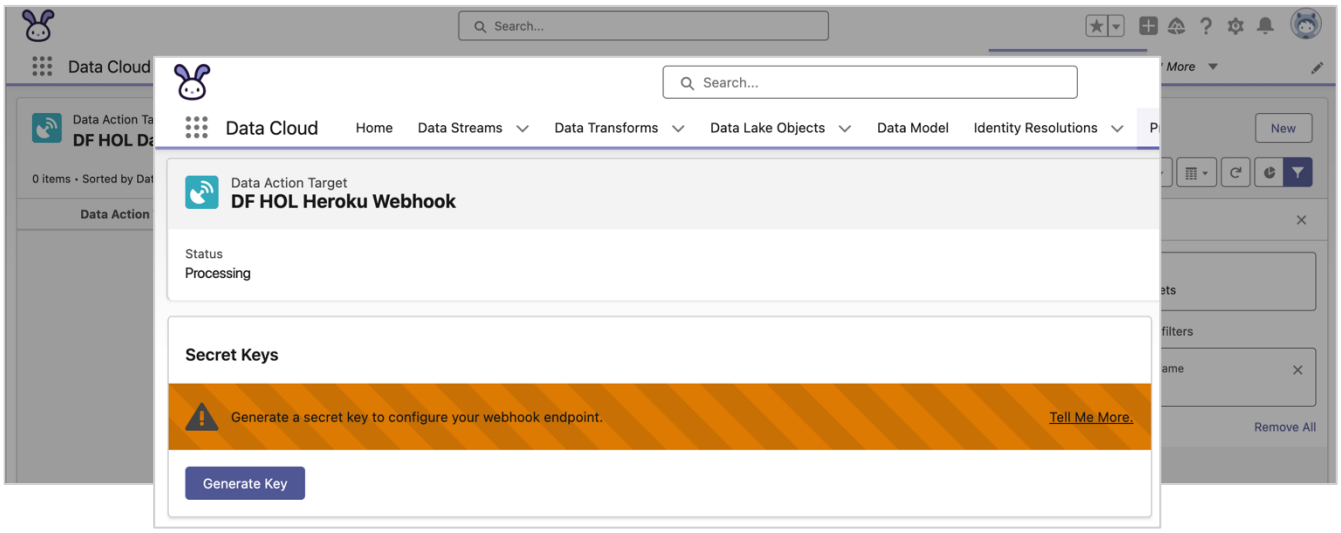


STEP 9: *CREATE A DATA ACTION TARGET & ACTION ON NEW RECORDS*

For this final exercise, we will set up a Data Action to fire an event to our Heroku Webhook so our Heroku Application can be notified, gather the relevant payload information, and translate that into a meaningful feature or personalization or engagement activity.

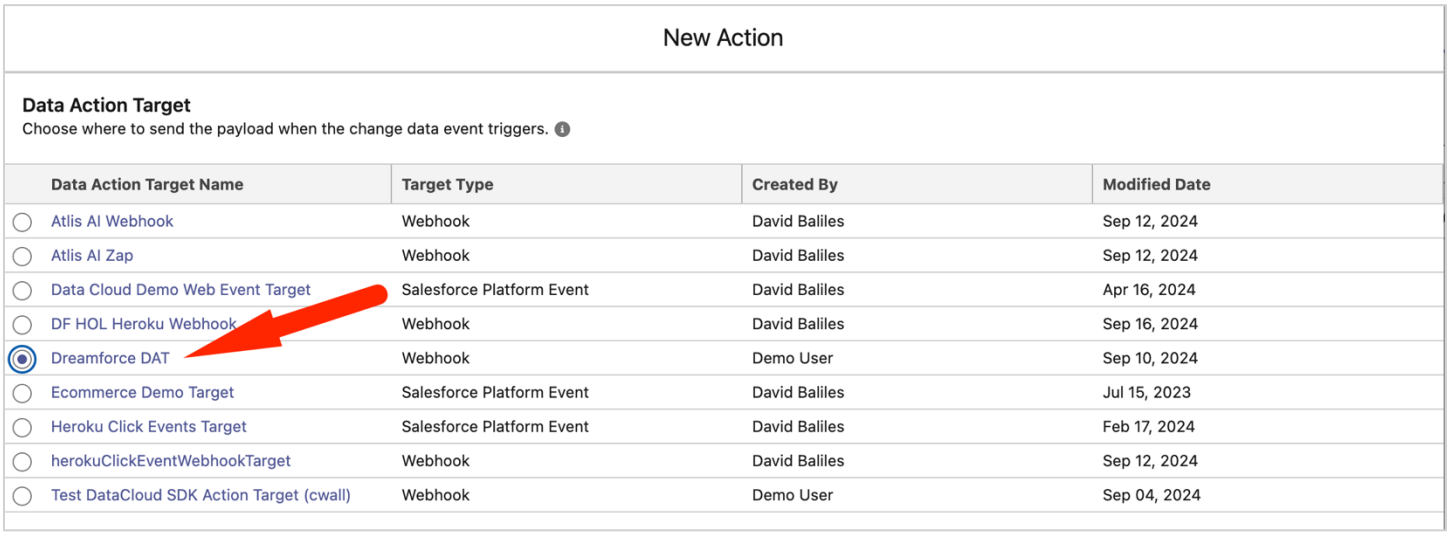
- Click **Data Action Targets** from within the **Data Cloud App**
- Click **New Data Action Target**
- Populate the values as follows:
    - **Data Action Target Name**: DF HOL Heroku Webhook
    - **Data Action Target API Name**: This will auto-populate
    - **Data Action Target Type**: Webhook
    - **URL to Publish**: https://webhook.herokudemos.com/sfdc

- Click **Save**



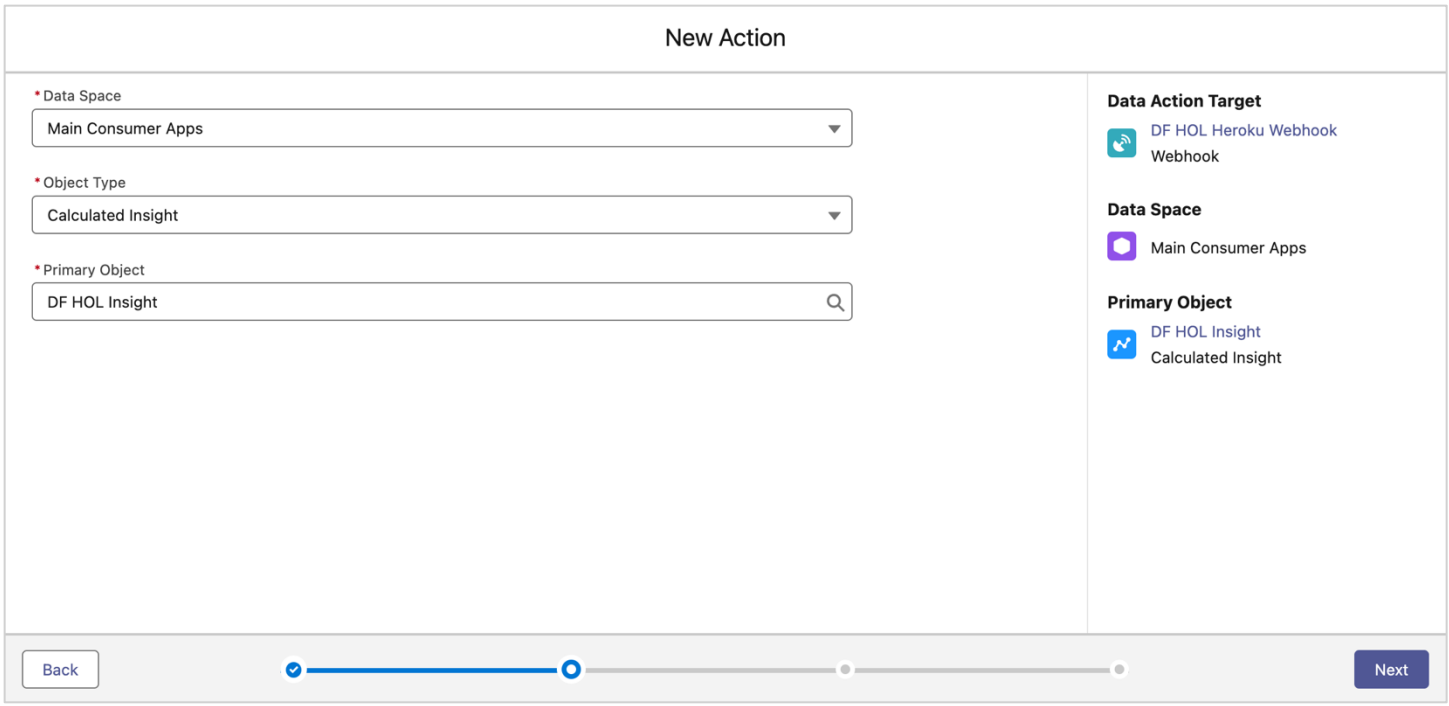
- Click **Generate Key**

- Click **Data Actions** from the **Data Cloud App** Top Tab
- Click **New Data Action**
- Select the **Data Action Target** you created in the preview step above and click Next

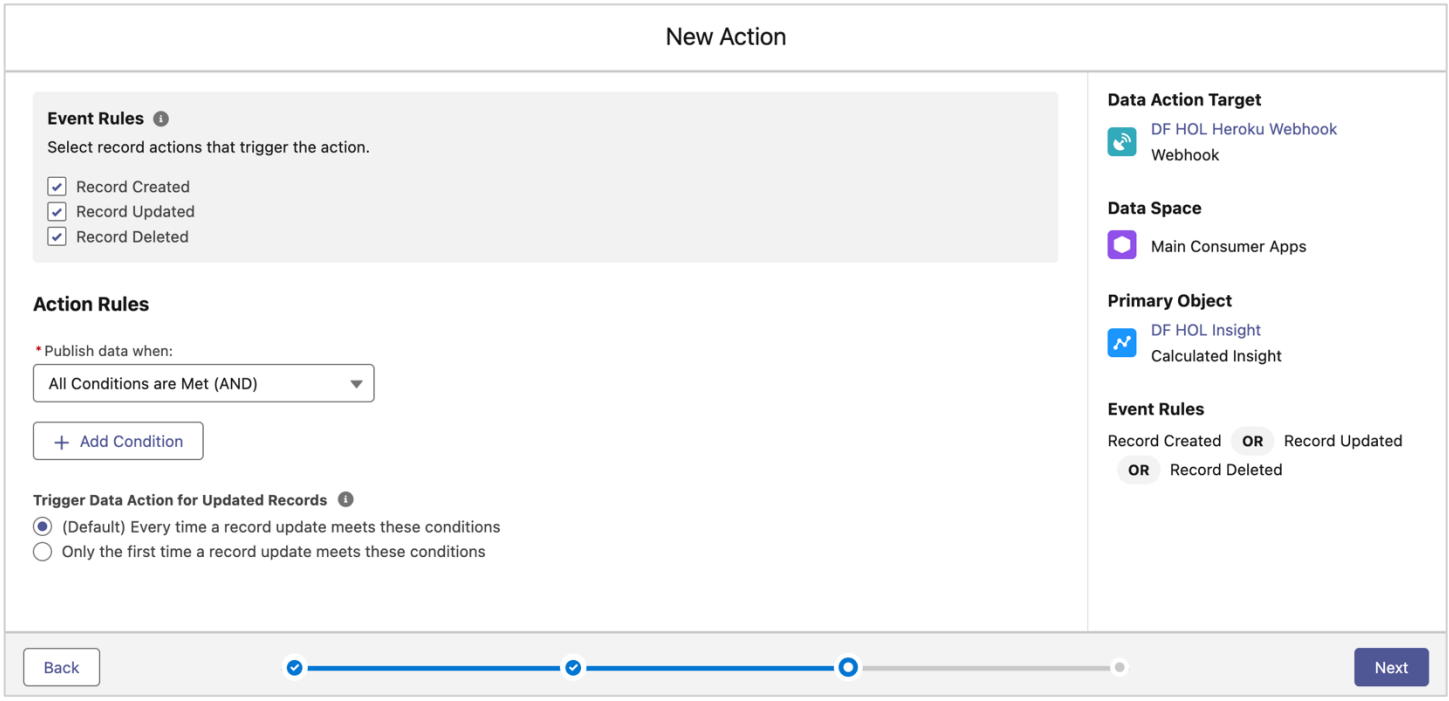


- Select your **Data Space**
- In **Object Type**, select **Calculated Insight**

- In **Primary Object**, select the name you gave your **Calculated Insight** and hit **Next**

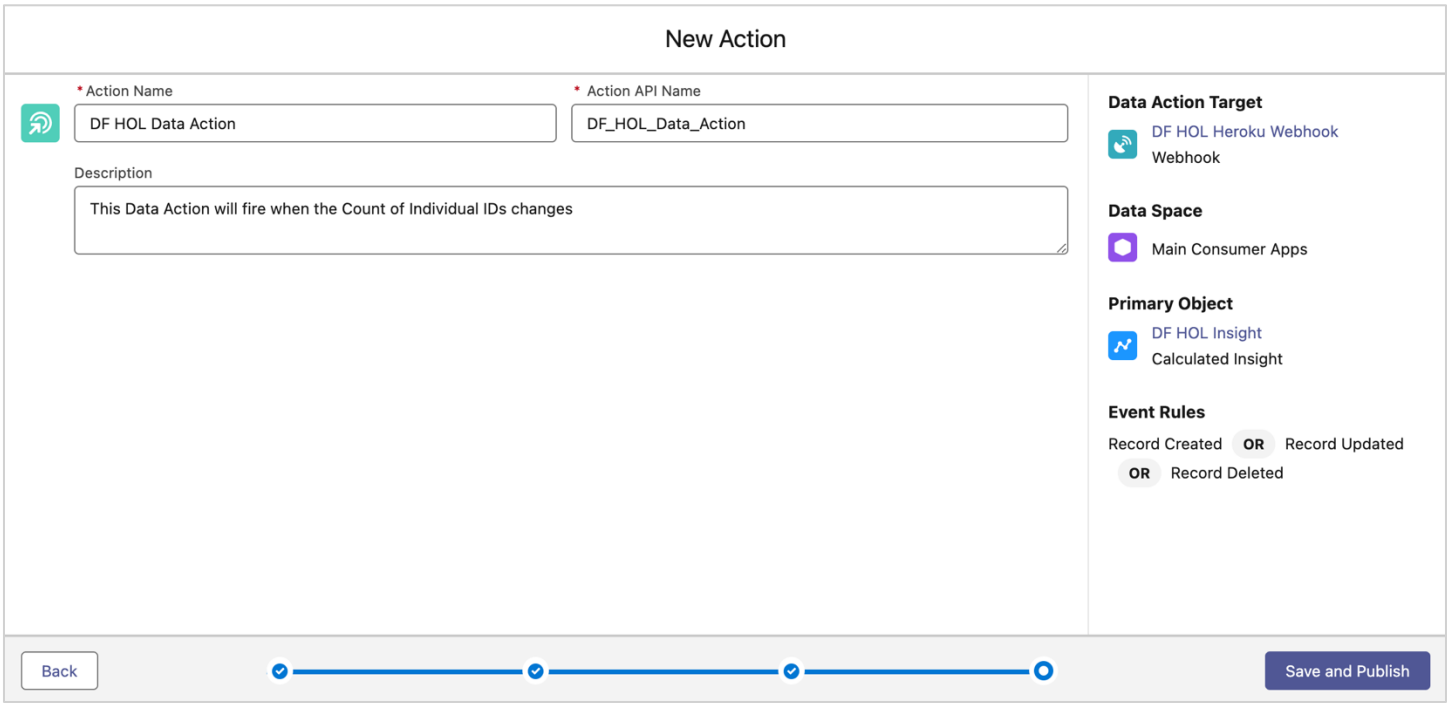


- For the next screen, select all of the following attributes:
  - **Event Rules**: Record Created, Record Updated, Record Deleted
  - **Action Rules**: leave the default
  - **Trigger Data Action for Updated Records**: leave the default

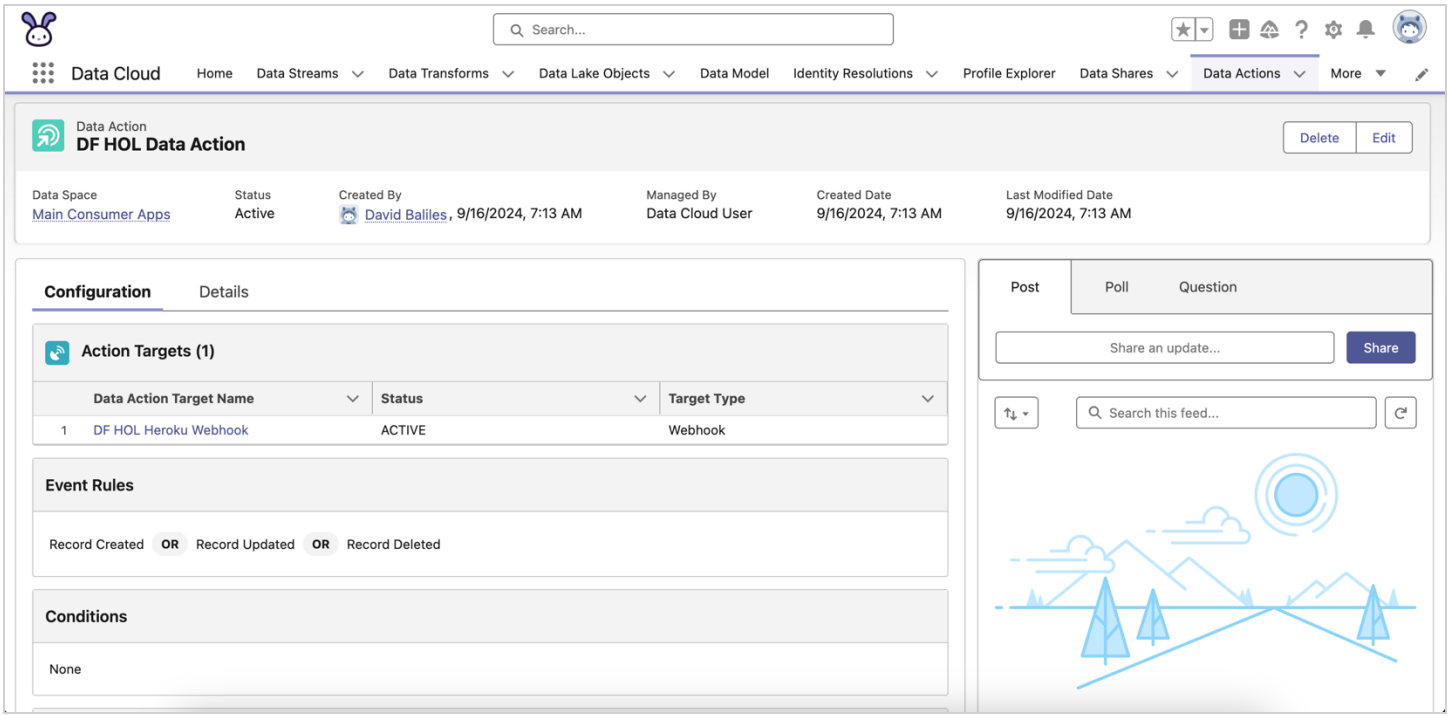


- Click **Next**

- Give your **Data Action** a name and click **Save and Publish**



- Your **Data Action** is now ready to fire back to the **Heroku Webhook** as soon as that Calculated Insight value changes



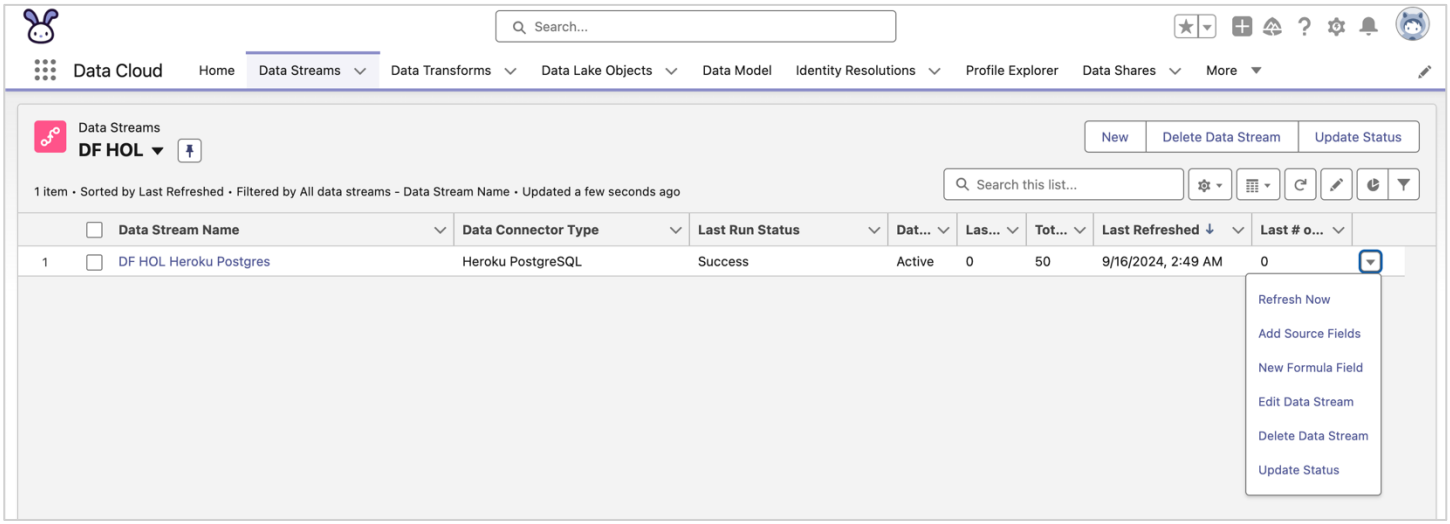
STEP 10: *SEND IN NEW RECORDS - WATCH THE EVENTS FIRE TO HEROKU*

For this final exercise, we'll see everything flow back to the Heroku Webhook, where we can explore all the possibilities for what a Heroku App might do with this new ability to leverage Data Cloud and Heroku together to drive more personalized, real-time applications

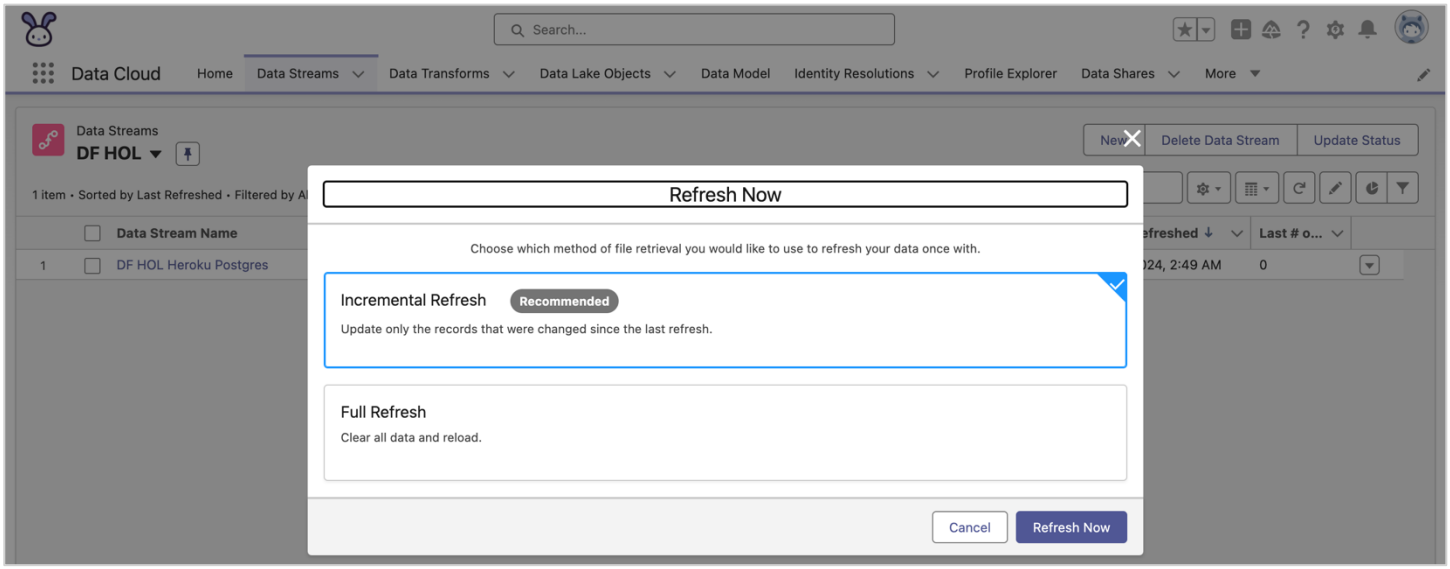
Your Workshop Leader(s) will now send some new records into your Heroku Postgres database, which will trigger your Heroku Postgres Connector for Data Cloud to ingest the new records.

To Refresh these new records without waiting for the sync schedule to kick in, perform the following:

- Click **Data Streams**
- Select your Heroku Postgres Data Lake (created by the Data Stream)
- In the drop-down selector on the far right, click **Refresh Now**



- Select **Incremental Refresh** when prompted



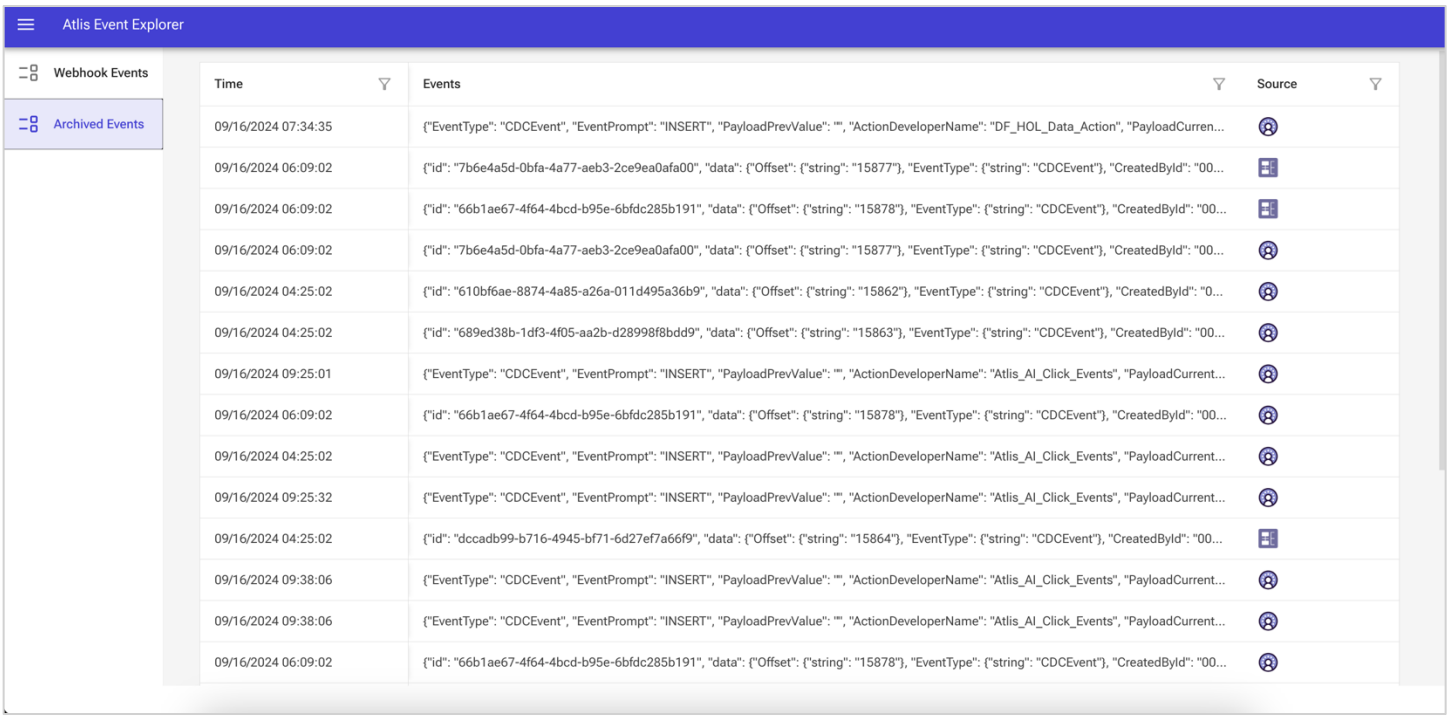
- You should now see the updated records flow into your Data Lake Object via the Data Stream Refresh

NOTE: This Refresh may take some time. If it does and yours has not refreshed, we will be switching to a full demo of everything we just completed but in a real-world scenario.

STEP 11: *OBSERVE OUR DATA ACTION ON THE HEROKU WEBHOOK*

- Open a new browser tab/window and navigate to https://webhook.herokudemos.com/webhook-events

- You will now see events as they flow in with the execution of **Data Actions**



- Events that come directly from Data Cloud via the ObjectChange event on the incoming Data Stream are displayed with the **Data Cloud logo**.
- Events that come from other Heroku Event Services are displayed with the **Heroku Events logo**

CONCLUSION: *WHAT HAVE WE LEARNED HERE TODAY?*

Today we've learned how to begin using two key areas of the Heroku + Data Cloud platform, leveraging the Data Exchange to sync Heroku Postgres data to Data Cloud, and how to send Intelligent Insights to Heroku Apps based on Events. If you're interested in learning more, please visit out Heroku + Data Cloud sessions here at Dreamforce or visit www.heroku.com