

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

INTRODUCTION

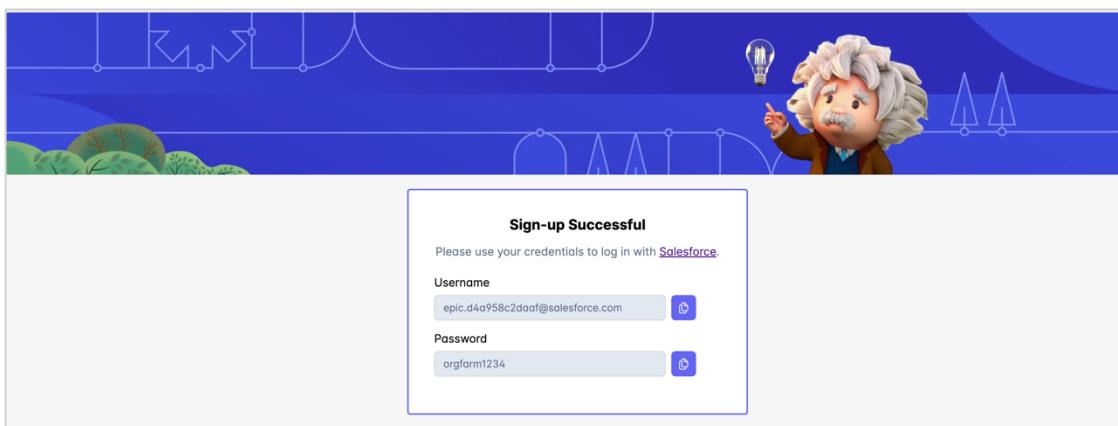
In this hands-on lab, you will learn how to connect your Heroku Postgres database to Salesforce Data Cloud, ingest data from a sample table, configure data actions that trigger webhooks, and verify that everything is working end-to-end. This lab will simulate how customer data flows from Heroku Postgres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

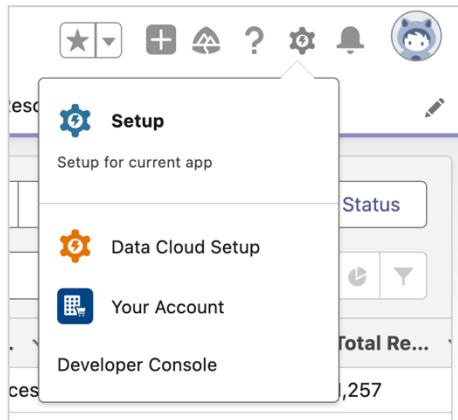
- Access to Salesforce Data Cloud
 - **Salesforce OrgFarm Data Cloud Orgs**
 - Event Code: 9osb2P
 - Event Name: Dreamforce 2024 - Rid 64
 - Signup Form: <http://sfdc.co/OrgFarmSignup>
 - You will receive a confirmation that looks as follows:



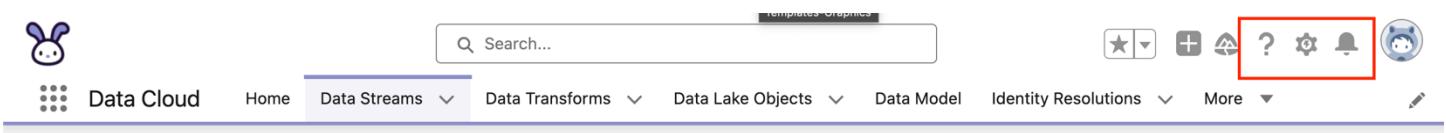
- Heroku Postgres database with credentials (provided for you below)
- Webhook URL for testing: <https://webhook.herokudemos.com>
- Completed the Login set up to your Salesforce Data Cloud instance (via email or above)

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

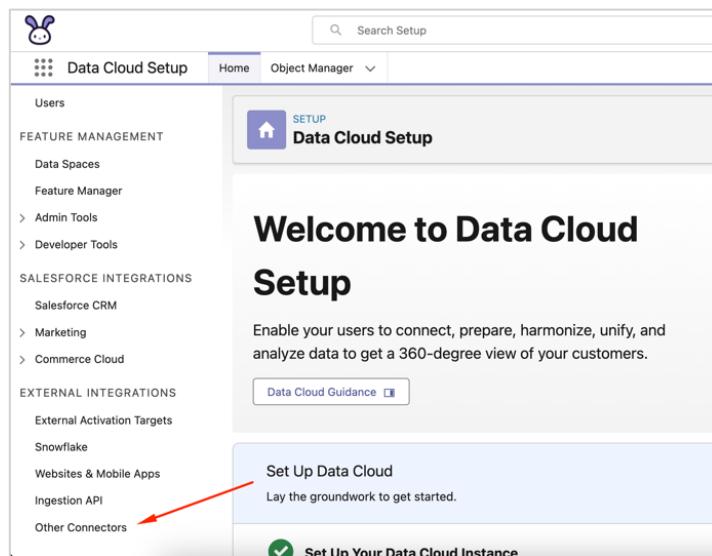


- Click the GEAR icon, Top Right of your environment
- Click Data Cloud Setup

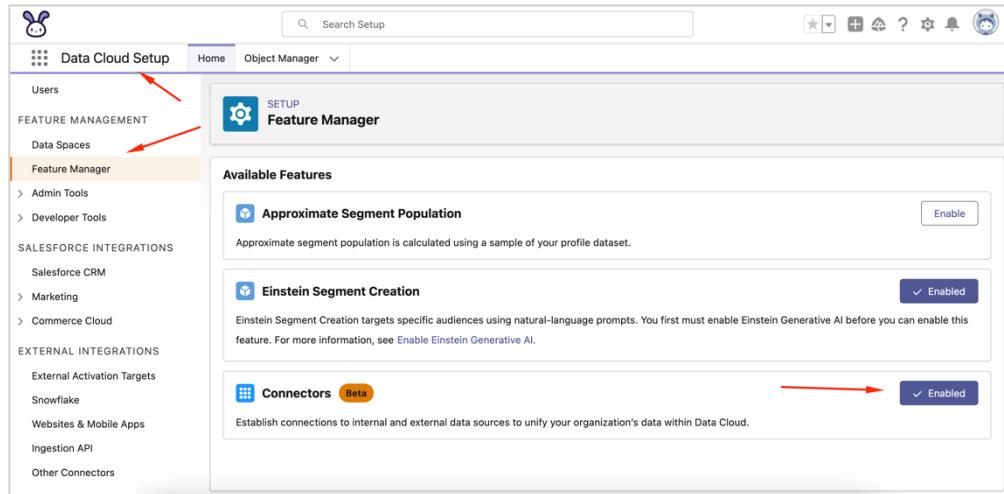


STEP 2: CONFIGURE YOUR HEROKU POSTGRES CONNECTOR

- 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**”

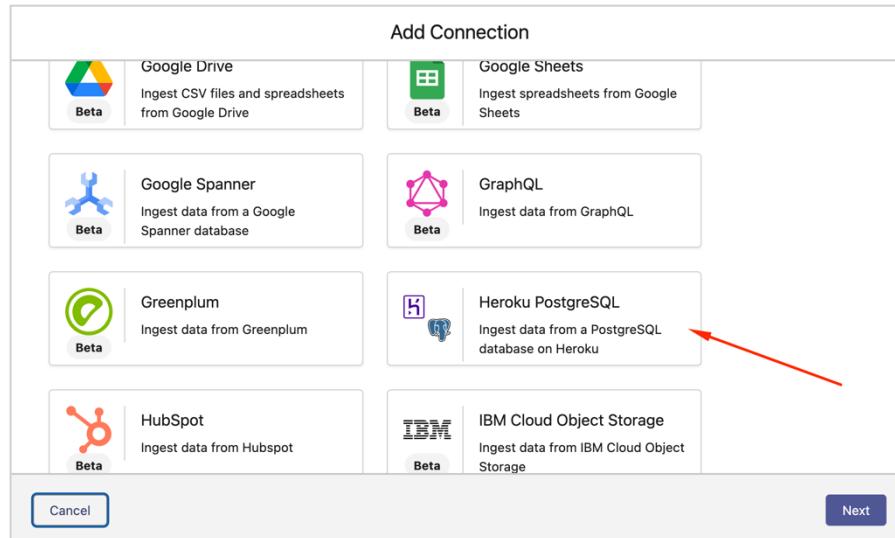


- On the Other Connectors screen, click **New**

The screenshot shows the 'Connectors' screen in the Setup interface. The table header includes columns for 'Connection Name', 'Connection Type', 'Connector Method', 'Status', and 'Last Modified'. A red arrow points to the 'New' button in the top right corner of the table header.

Connection Name	Connection Type	Connector Method	Status	Last Modified
1 Heroku Logs	Google Big Query	Source	Active	Dec 07, 2023, 02:43 PM
2 BigQuery Demo	Google Big Query	Source	Active	Dec 07, 2023, 01:51 PM
3 fx-postgres	Heroku PostgreSQL	Source	Active	Jun 05, 2024, 12:20 PM
4 My_Heroku_PG_Connecti...	Heroku PostgreSQL	Source	Active	May 31, 2024, 02:39 PM
5 fx-datalake-commerce	Heroku PostgreSQL	Source	Active	May 31, 2024, 11:54 AM
6 fx-datalake-datacloud	Heroku PostgreSQL	Source	Active	Dec 18, 2023, 11:19 AM
7 fx-datalake-public	Heroku PostgreSQL	Source	Active	Jun 12, 2024, 11:31 AM

- 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**

The screenshot shows the 'New Heroku PostgreSQL Source' configuration screen. The fields are as follows:

- Connection Name:** DF HOL Heroku Postgres
- Connection API Name:** DF_HOL_Heroku_Postgres
- Authentication Details:**
 - Username:** u7l23h4a5j9400
 - Password:** (redacted)
 - Authentication Method:** Username and password of cloud account for authentication
- Connection Details:**
 - Connection URL:** ec2-44-219-92-244.compute-1.amazonaws.com
 - Schema:** public
 - Database:** d2fmuir1paa171
- Test Connection:** Connection was established.
- Buttons:** Back, Save

- DATABASE_URL:** postgres://u7l23h4a5j9400:p010763123fb8e1a4ca577dc0a094b9bf2c2e9775e1291fa16a4a374181ec7b93@ec2-44-219-92-244.compute-1.amazonaws.com:5432/d2fmuir1paa171
 - 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**

DF HOL Heroku Postgres

Status: Active | Last Modified Date: 9/14/2024, 12:35 PM | Connector Method: Ingress

Authentication Details

Username: u7l23h4a5j9400 | Password: ****

Authentication Method: Username and password of cloud account for authentication

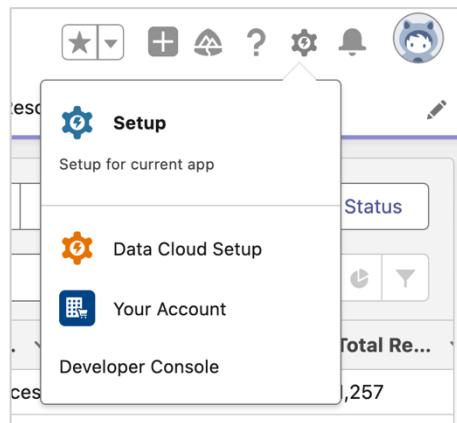
Connection Details

Connection URL: ec2-44-219-92-244.compute-1.amazonaws.com | Schema: public

Database: d2fmuir1paa17l

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

The screenshot shows the 'Data Cloud Setup' interface. On the left, there's a sidebar with 'USER MANAGEMENT' and 'FEATURE MANAGEMENT' sections. Under 'FEATURE MANAGEMENT', 'Data Spaces' is highlighted with a red arrow. The main content area shows a 'Data Spaces' section with a sub-section titled 'Enhance Data Space Security'. A red arrow points to the 'New' button in this section.

STEP 4: CONFIGURE YOUR DATA CLOUD DATA STREAM INGESTION

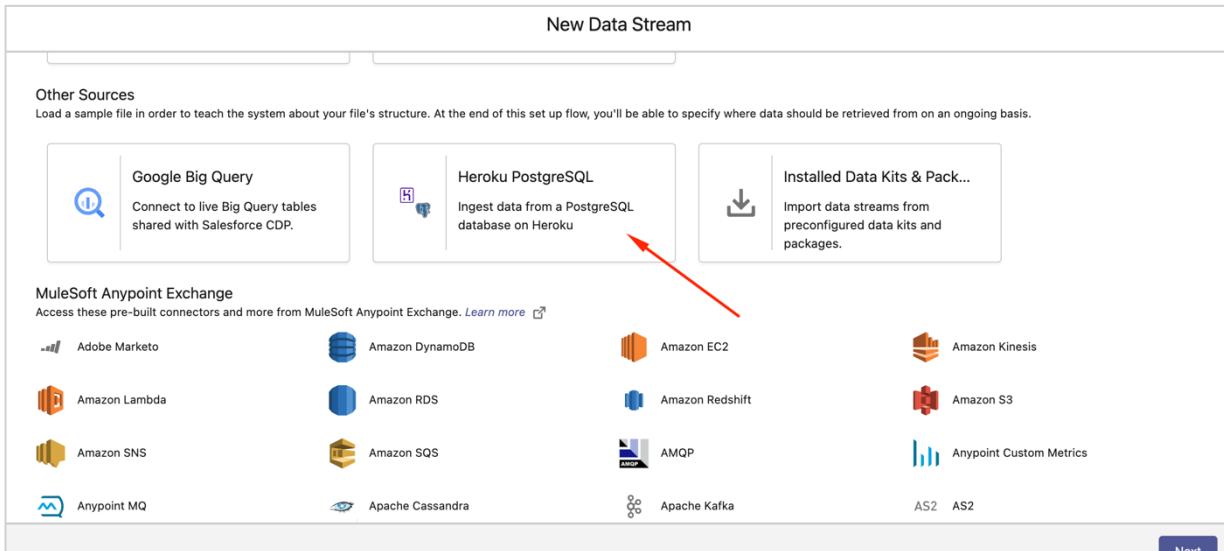
- Exit out of **Data Cloud Setup** and return to the main Data Cloud **Home** tab within the Data Cloud Application

The screenshot shows the 'Data Cloud' home page. The top navigation bar includes tabs for Home, Data Streams, Data Transforms, Data Lake Objects, Data Model, Identity Resolutions, Profile Explorer, Cases, and More. The 'Data Streams' tab is selected. The main area displays 'Quarterly Performance' data and an 'Assistant' section with a cartoon illustration.

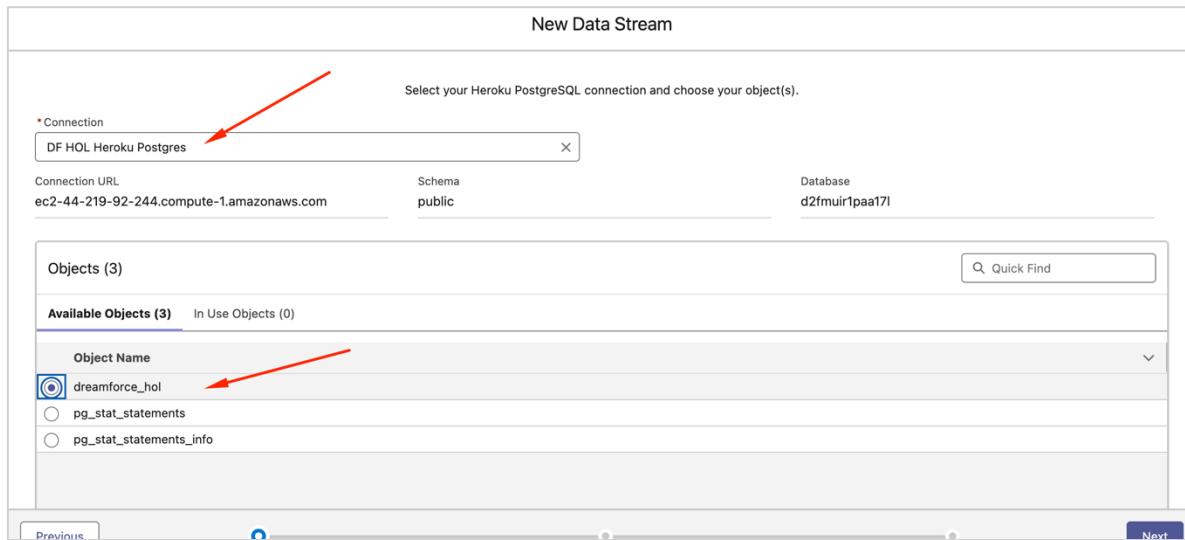
- Click **Data Streams** from the top Tab bar, then select “**Recently Viewed**” (if applicable) and select **All Data Streams** to ensure you are seeing all available Data Streams (you may repeat this step in the future if you cannot see a created Data Stream for some reason)
- Click **New** to create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

The screenshot shows the 'Data Streams' page. The top navigation bar includes tabs for Home, Data Streams, Data Transforms, Data Lake Objects, Data Model, Identity Resolutions, Profile Explorer, Cases, and More. The 'Data Streams' tab is selected. The main area shows a list of data streams with a 'Data Stream Name' column and various filtering and sorting options. A red arrow points to the 'All Data Streams' dropdown menu, and another red arrow points to the 'New' button in the top right corner.

- 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**

Stream Type: Ingest, Data Stream Status: Active, Last Run Status: Pending, Last Refreshed: 9/14/2024, Last Processed Records: 0, Total Records: 0.

Data Properties:
 Object Category: Other, Data Lake Object Name: DF HOL Heroku Postgres
 Object API Name: DF_HOL_Heroku_Postgres__dll

Fields (12):

Header	Field Label	Field API	Type	Use	Formula	Status
1	Internal Organ...	InternalOrganizat...	Text	✓		
2	Data Source	DataSource__c	Text	✓		
3	Data Source O...	DataSourceObje...	Text	✓		

Data Mapping:
 Data mappings have ethics, privacy, and consent considerations. Learn more about ethics, privacy, and consent in [Salesforce Help](#).
 Only mapped fields or objects with relationships can be used for segmentation and insights.
 Data Space: Main Consumer Apps, Fields mapped: 0/0, Status: READY. **Start**

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**

Stream Type: Ingest, Data Stream Status: Active, Last Run Status: Success, Last Refreshed: 9/14/2024, Last Processed Records: 50, Total Records: 50.

Data Properties:
 Object Category: Other, Data Lake Object Name: DF HOL Heroku Postgres
 Object API Name: DF_HOL_Heroku_Postgres__dll

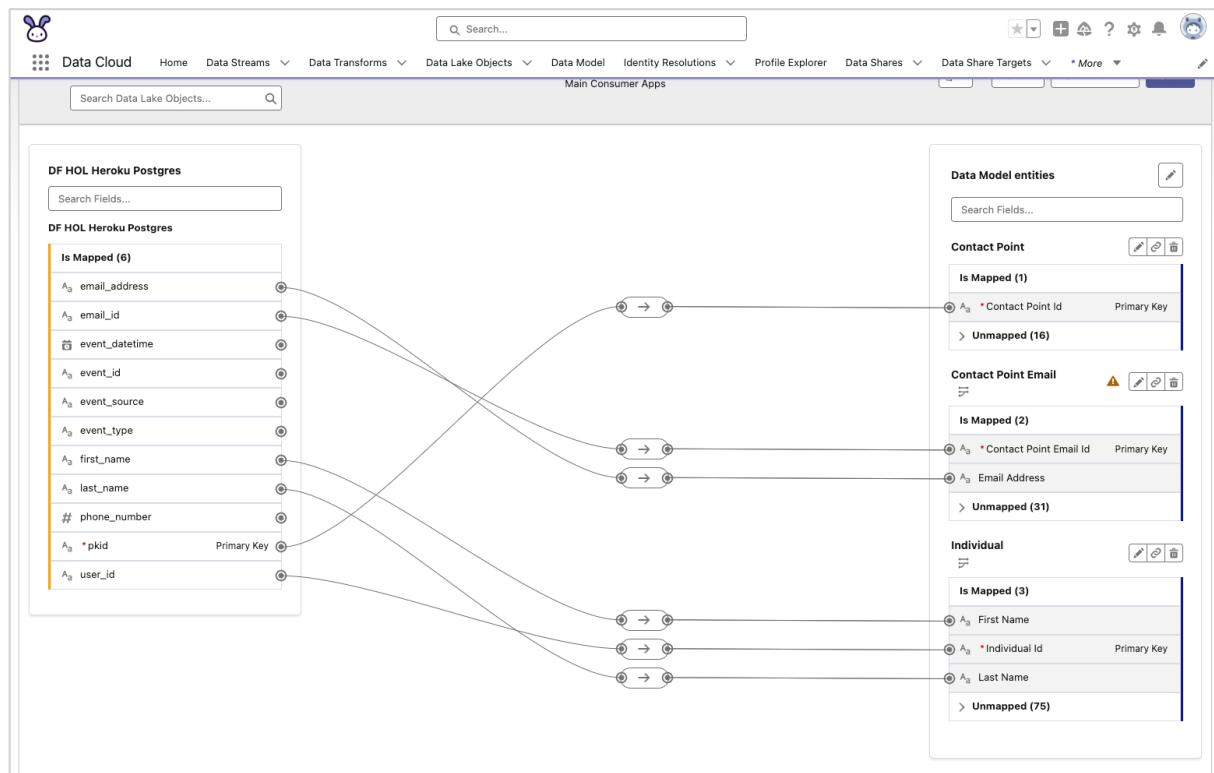
Fields (12):

Header	Field Label	Field API	Type	Use	Formula	Status
1	Data Source O...	DataSourceObje...	Text	✓		
2	Data Source	DataSource__c	Text	✓		
3	Internal Organ...	InternalOrganizat...	Text	✓		
4	email_address	email_address	email_address__c	Text		
5	event_datetime	event_datetime	event_datetime__c	DateTime	Record Modified Field	

Data Mapping:
 Data mappings have ethics, privacy, and consent considerations. Learn more about ethics, privacy, and consent in [Salesforce Help](#).
 Only mapped fields or objects with relationships can be used for segmentation and insights.
 Data Space: Main Consumer Apps, Fields mapped: 0/0, Status: READY. **Start**

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

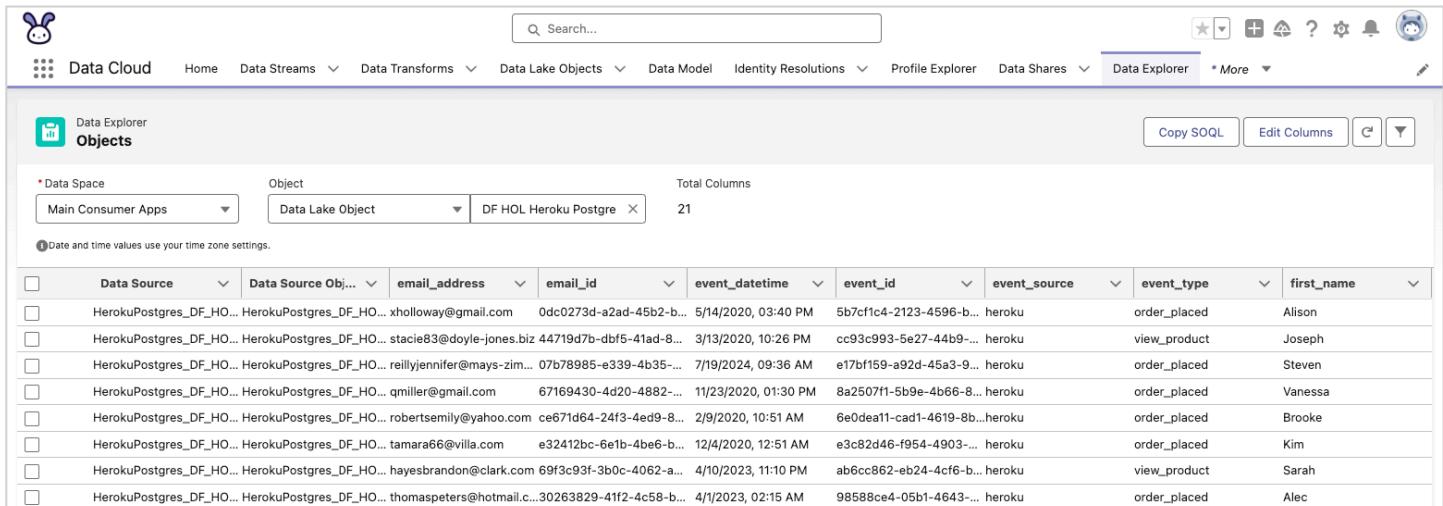
- **Individual**
- **Contact Point**
- **Contact Point Email**
- You'll notice some of the fields, like **Email Address**, automatically are mapped for you
- Map the following fields and then hit **Save**:
 - pkid -> Individual.Individual ID
 - email_id -> Contact Point Email Id
 - user_id -> Individual.Individual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



The screenshot shows the Data Cloud Data Explorer interface. At the top, there is a navigation bar with links for Home, Data Streams, Data Transforms, Data Lake Objects, Data Model, Identity Resolutions, Profile Explorer, Data Shares, Data Explorer, and More. The Data Explorer tab is selected. Below the navigation bar, there is a search bar and a toolbar with various icons. The main area is titled "Data Explorer Objects" and shows a table of data. The table has a header row with columns: Data Space, Data Source, Data Source Obj..., email_address, email_id, event_datetime, event_id, event_source, event_type, and first_name. The "Data Space" dropdown is set to "Main Consumer Apps". The "Object" dropdown is set to "Data Lake Object" and the "DF HOL Heroku Postgre" table is selected. The table shows 21 total columns. The data in the table consists of 10 rows, each representing an event. The columns for each row are: Data Source (HerokuPostgres_DF_HO...), Data Source Obj... (HerokuPostgres_DF_HO...), email_address (xholloway@gmail.com), email_id (0dc0273d-a2ad-45b2-b...), event_datetime (5/14/2020, 03:40 PM), event_id (5b7cf1c4-2123-4596-b...), event_source (heroku), event_type (order_placed), and first_name (Alison). The other 9 rows show similar data for other users like Joseph, Steven, Vanessa, Brooke, Kim, Sarah, and Alec, with event times ranging from 3/13/2020 to 4/1/2023.

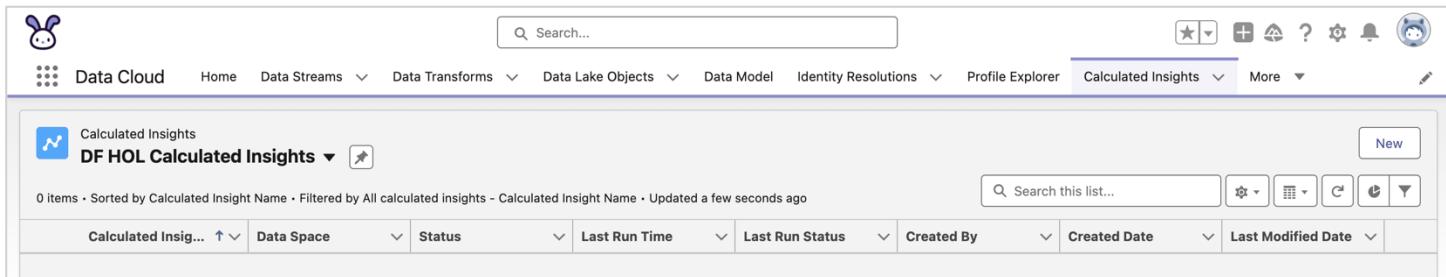
Data Space	Data Source	Data Source Obj...	email_address	email_id	event_datetime	event_id	event_source	event_type	first_name
Main Consumer Apps	HerokuPostgres_DF_HO...	HerokuPostgres_DF_HO...	xholloway@gmail.com	0dc0273d-a2ad-45b2-b...	5/14/2020, 03:40 PM	5b7cf1c4-2123-4596-b...	heroku	order_placed	Alison
	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...	reillyjeniffer@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

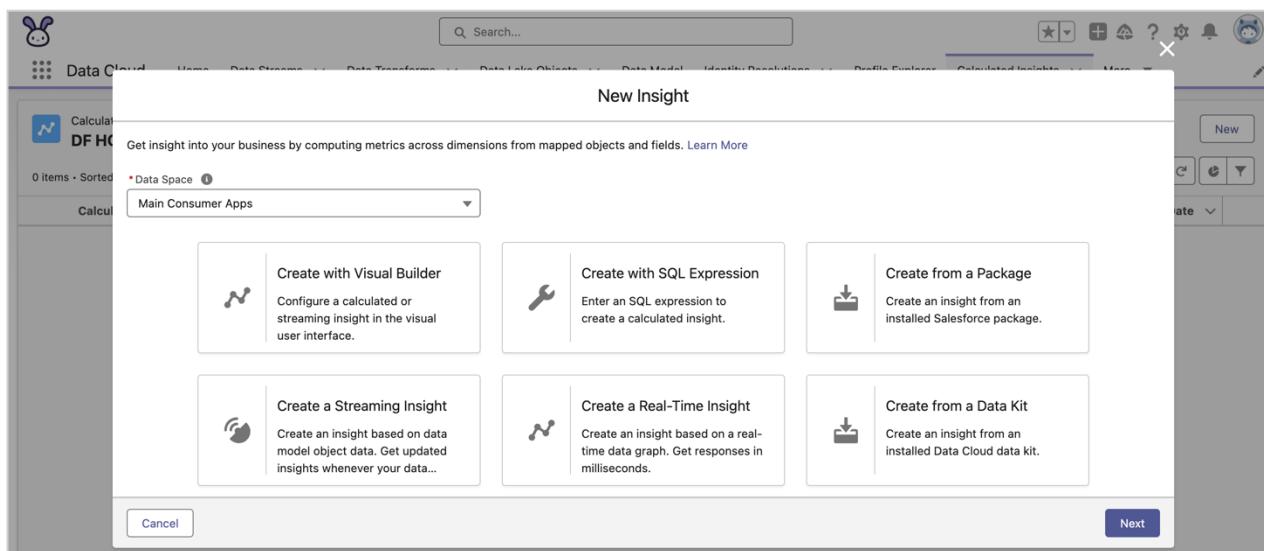
For this exercise, we'll create a Calculated Insight that we will then use to trigger a Data Action when the value changes. The full sequence will look something like:

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

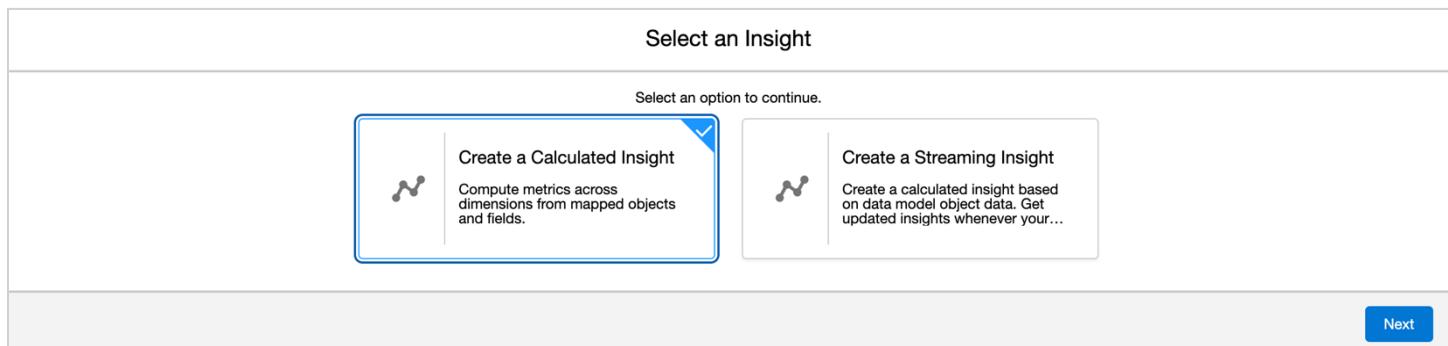
- Click **Calculated Insights** from the **Data Cloud App** Top Tab



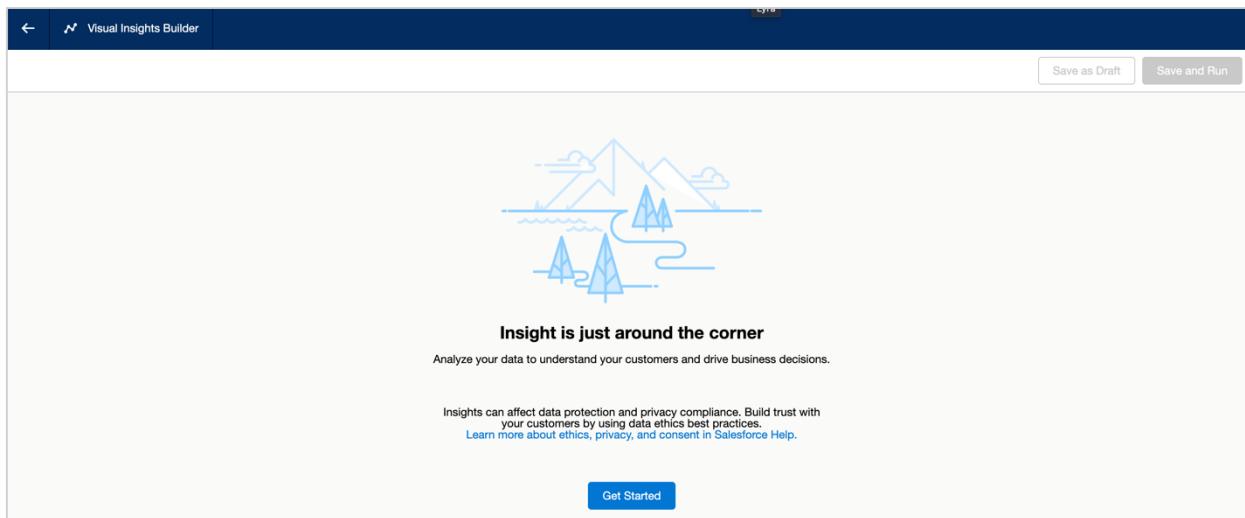
- Click **New**
- Select your **Data Space**



- 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

Select Input Data

Object Label	Type
<input checked="" type="radio"/> Individual	Standard
<input type="radio"/> Unified Individual 1001	Derived
<input type="radio"/> Unified Individual 1002	Derived
<input type="radio"/> Unified Link Individual 1001	Bridge
<input type="radio"/> Unified Link Individual 1002	Bridge

FIELDS (INDIVIDUAL)

Search Fields

Fields

Birth Date

Created Date

Current Employer Name

Data Source

Data Source Object

First Name

Individual Id

Internal Organization

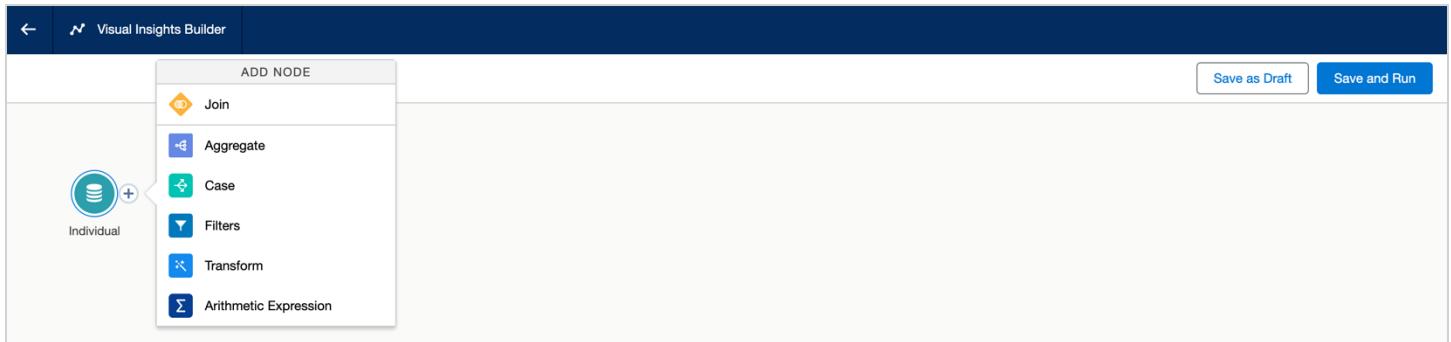
Key Qualifier First Name KQ

Key Qualifier Individual Id KQ

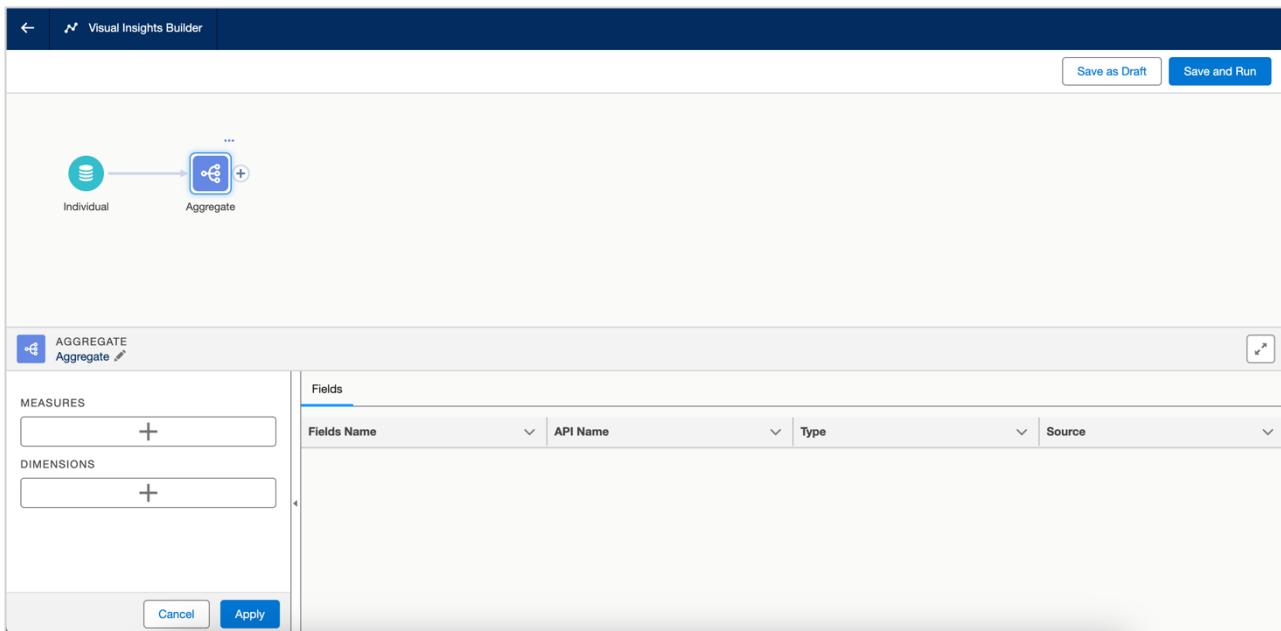
Key Qualifier Last Name KQ

Cancel Next

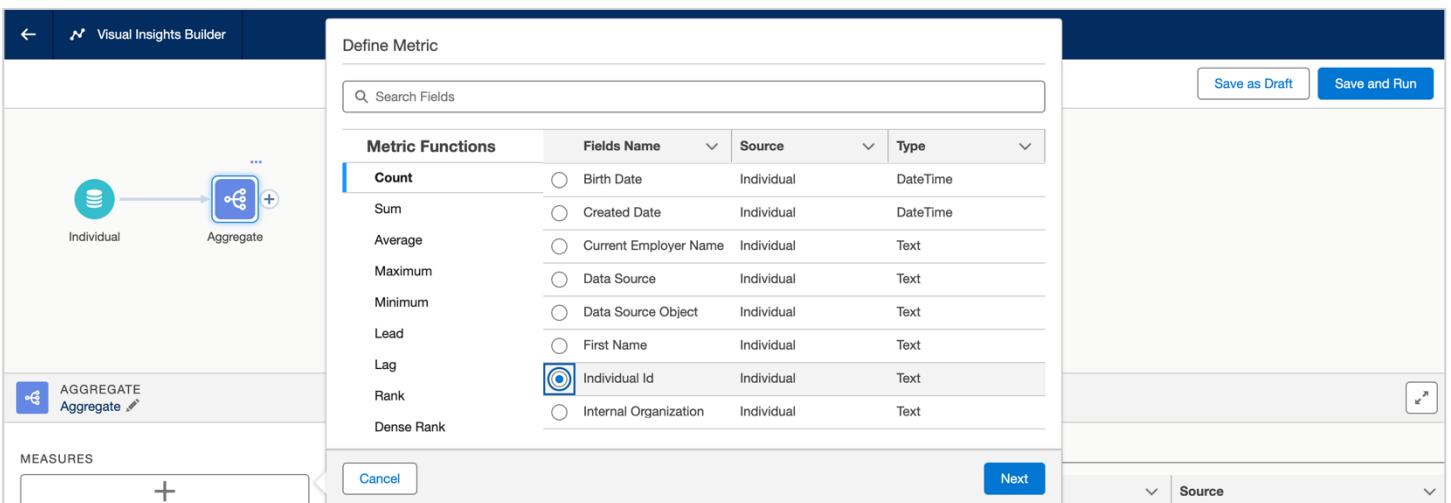
- Click the + sign next to the **Individual** icon



- 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.herokuapp.com/sfdc>

- Click Save

DF HOL Heroku Webhook

Status: Processing

Secret Keys

⚠ Generate a secret key to configure your webhook endpoint. [Tell Me More](#)

[Generate Key](#)

- 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 previous step above and click Next

New Action

Data Action Target
Choose where to send the payload when the change data event triggers. [i](#)

Data Action Target Name	Target Type	Created By	Modified Date
Atlis AI Webhook	Webhook	David Baliles	Sep 12, 2024
Atlis AI Zap	Webhook	David Baliles	Sep 12, 2024
Data Cloud Demo Web Event Target	Salesforce Platform Event	David Baliles	Apr 16, 2024
DF HOL Heroku Webhook	Webhook	David Baliles	Sep 16, 2024
Dreamforce DAT	Webhook	Demo User	Sep 10, 2024
Ecommerce Demo Target	Salesforce Platform Event	David Baliles	Jul 15, 2023
Heroku Click Events Target	Salesforce Platform Event	David Baliles	Feb 17, 2024
herokuClickEventWebhookTarget	Webhook	David Baliles	Sep 12, 2024
Test DataCloud SDK Action Target (cwall)	Webhook	Demo User	Sep 04, 2024

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

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

New Action

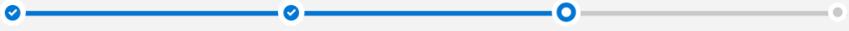
* Data Space	Main Consumer Apps	Data Action Target
* Object Type	Calculated Insight	DF HOL Heroku Webhook Webhook
* Primary Object	DF HOL Insight	Data Space
		Main Consumer Apps
		Primary Object
		DF HOL Insight Calculated Insight

Back  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

New Action

Event Rules 	Select record actions that trigger the action.	Data Action Target
<input checked="" type="checkbox"/> Record Created		DF HOL Heroku Webhook
<input checked="" type="checkbox"/> Record Updated		Webhook
<input checked="" type="checkbox"/> Record Deleted		Data Space
Action Rules		Main Consumer Apps
* Publish data when:		Primary Object
All Conditions are Met (AND)		DF HOL Insight Calculated Insight
+ Add Condition		Event Rules
Trigger Data Action for Updated Records 		Record Created <input type="radio"/> Record Updated <input type="radio"/> Record Deleted
<input checked="" type="radio"/> (Default) Every time a record update meets these conditions		<input type="radio"/> Only the first time a record update meets these conditions

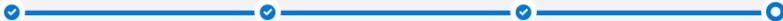
Back  Next

- Click **Next**

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

New Action

Action Name  DF HOL Data Action	Action API Name DF_HOL_Data_Action	Data Action Target  DF HOL Heroku Webhook Webhook
Description This Data Action will fire when the Count of Individual IDs changes		Data Space  Main Consumer Apps
		Primary Object  DF HOL Insight Calculated Insight
		Event Rules Record Created <input checked="" type="radio"/> Record Updated <input checked="" type="radio"/> Record Deleted

Back  Save and Publish

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

Data Cloud Home Data Streams Data Transforms Data Lake Objects Data Model Identity Resolutions Profile Explorer Data Shares Data Actions More

 Data Action DF HOL Data Action Delete Edit

Data Space Main Consumer Apps	Status Active	Created By  David Baliles, 9/16/2024, 7:13 AM	Managed By Data Cloud User	Created Date 9/16/2024, 7:13 AM	Last Modified Date 9/16/2024, 7:13 AM
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Configuration **Details**

 Action Targets (1)

Data Action Target Name	Status	Target Type
1 DF HOL Heroku Webhook	ACTIVE	Webhook

Event Rules
Record Created Record Updated Record Deleted

Conditions
None

Post Poll Question

Share an update... Share

Search this feed... Search



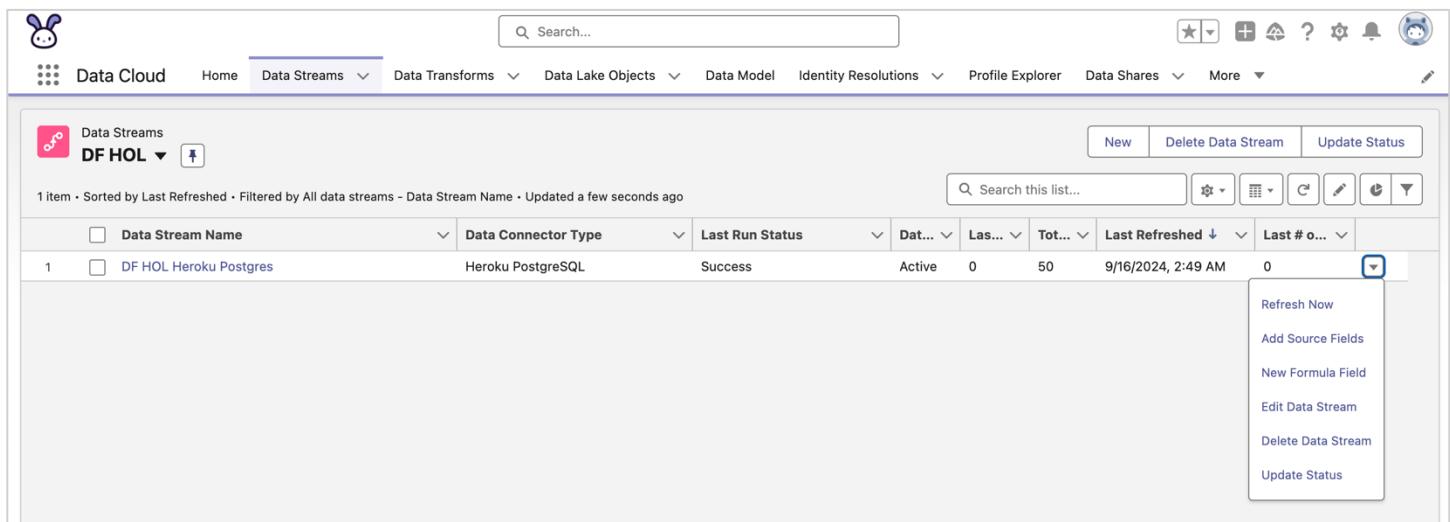
STEP 10: SEND IN NEW RECORDS - WATCH THE EVENTS FIRE TO HEROKU

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.

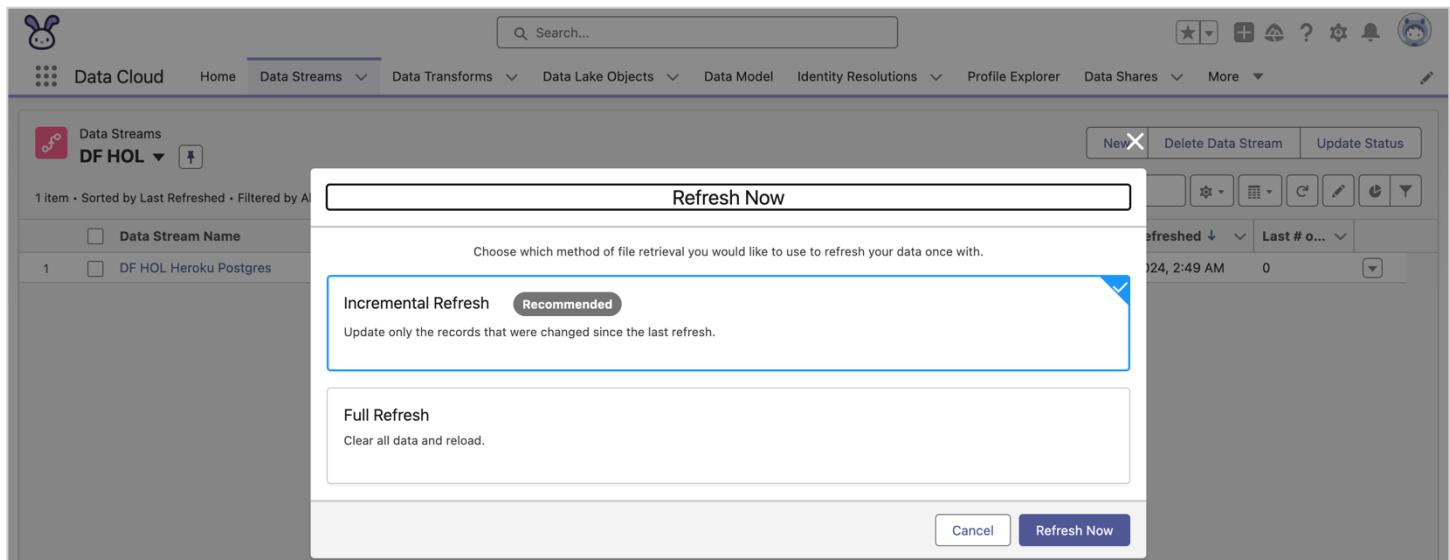
To Refresh these new records without waiting for the sync schedule to kick in, perform the following:

- 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**



The screenshot shows the Data Cloud interface with the 'Data Streams' tab selected. A list of data streams is displayed, with 'DF HOL' selected. A context menu is open over the 'DF HOL' entry, showing options like 'Refresh Now', 'Add Source Fields', 'New Formula Field', 'Edit Data Stream', 'Delete Data Stream', and 'Update Status'. The 'Refresh Now' option is highlighted.

- Select **Incremental Refresh** when prompted



The screenshot shows the 'Refresh Now' dialog box. It has two options: 'Incremental Refresh' (Recommended) and 'Full Refresh'. The 'Incremental Refresh' option is selected and described as 'Update only the records that were changed since the last refresh'. The 'Full Refresh' option is described as 'Clear all data and reload'. At the bottom of the dialog are 'Cancel' and 'Refresh Now' buttons.

- 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.herokuapp.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 our Heroku + Data Cloud sessions here at Dreamforce or visit www.heroku.com