

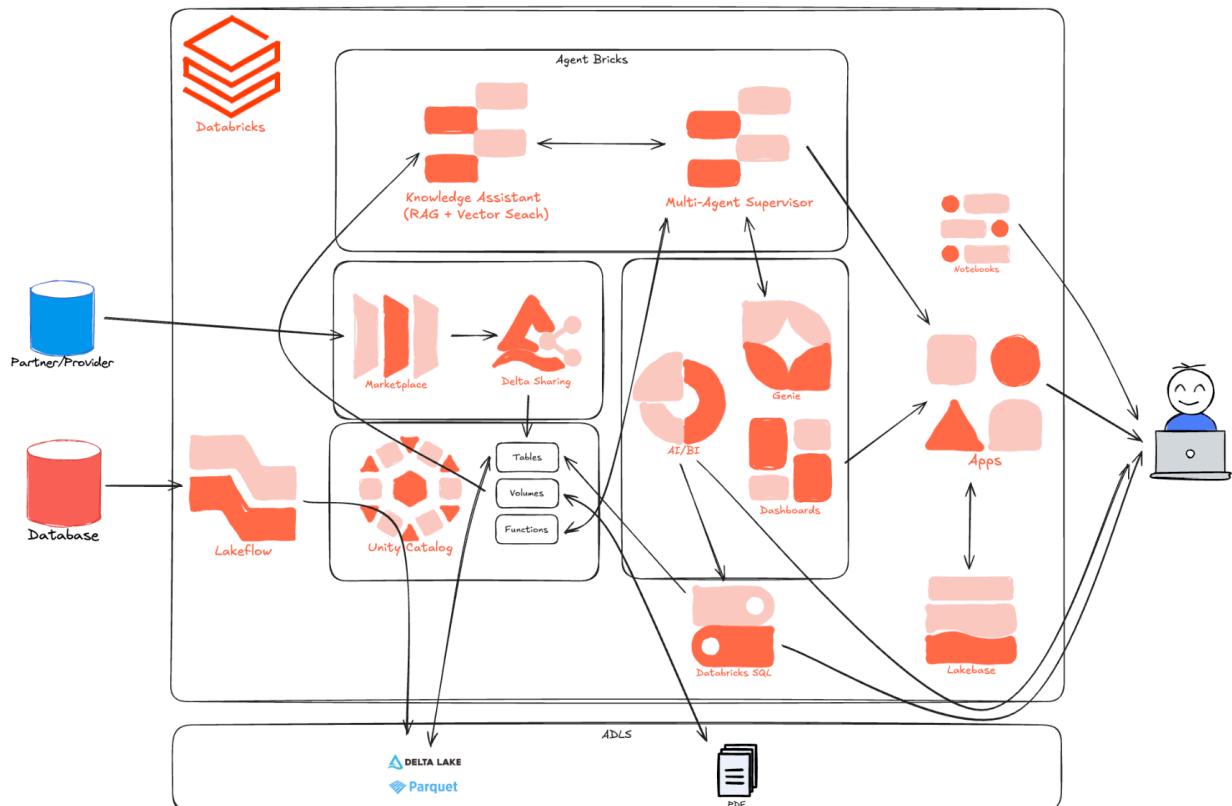
# Portfolio Management app

## Description

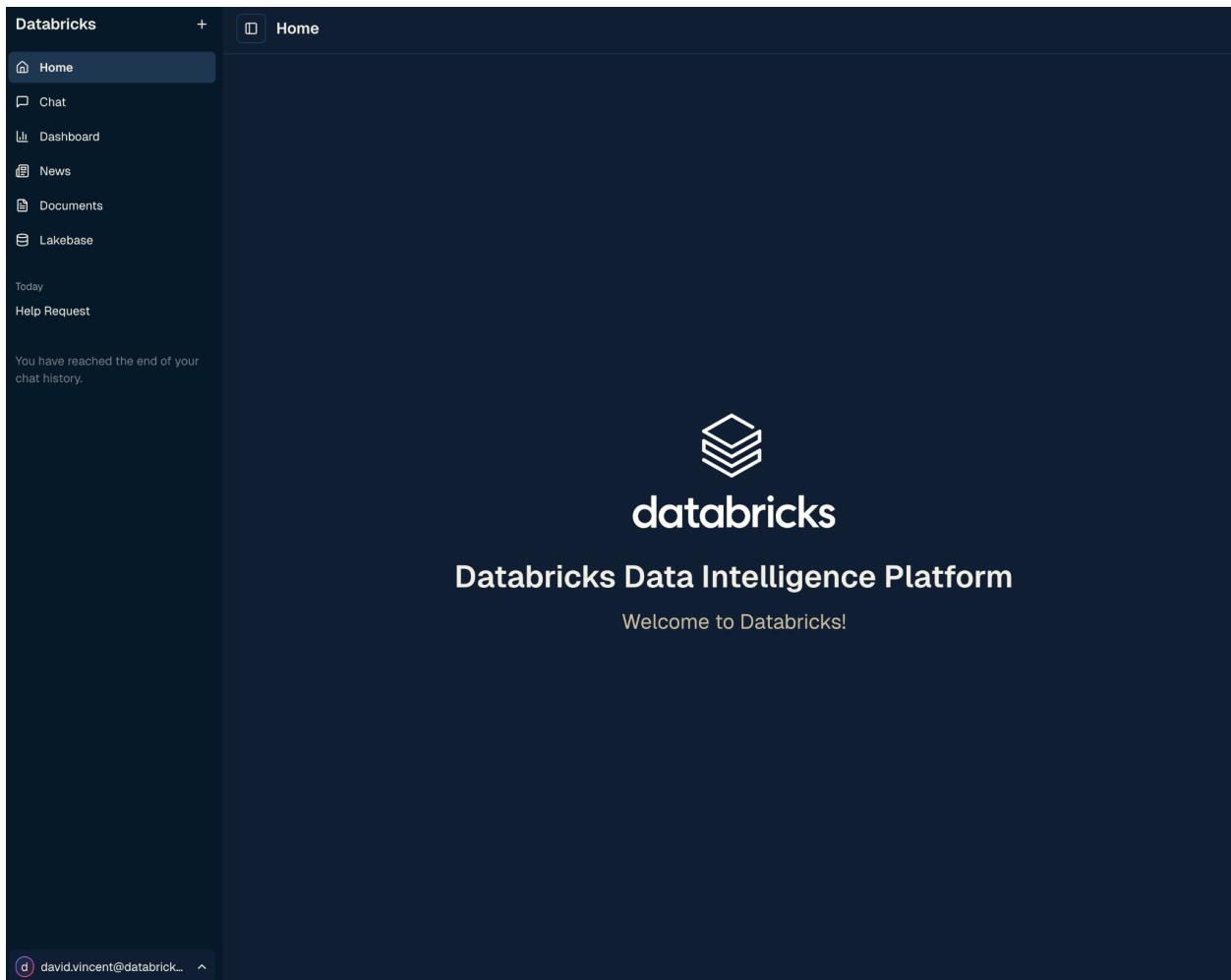
The demo is an application that provides various tools for a Portfolio manager

It deploys the following components:

- Serverless workspace and metastore
- Unity Catalog
- Lakeflow job (creates tables, volume, functions)
- Lakeflow pipeline (Streaming table and Materialized view)
- Marketplace integration
- AI/BI (Dashboard and Genie)
- Agent Bricks Knowledge Assistant
- Agent Bricks Multi-Agent Supervisor
- Databricks Apps
- Lakebase



## App screenshot:

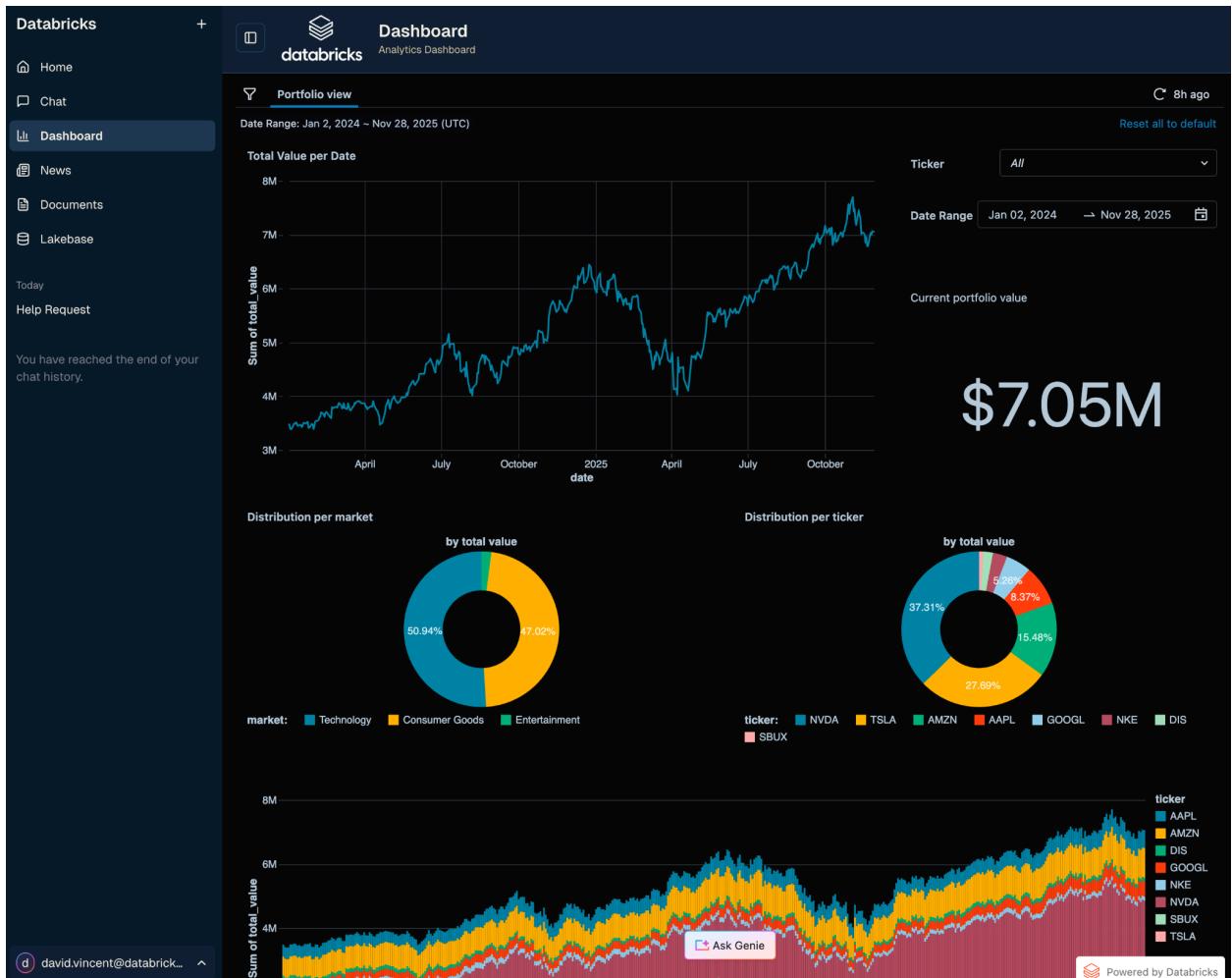


The screenshot shows the Databricks AI Assistant Chat interface. On the left, there is a sidebar with the following menu items:

- Home
- Chat** (selected)
- Dashboard
- News
- Documents
- Lakebase

Below the menu, there are two sections: "Today" and "Help Request". Under "Today", it says "You have reached the end of your chat history.".

The main area is titled "Hello there!" and asks "How can I help you today?". At the bottom, there are two input fields: "How can you help me?" and "Tell me something I might not know". A message input field contains "Send a message...". A small circular icon with an upward arrow is located in the bottom right corner of the message input area.



Databricks

+  News

Home Chat Dashboard News Documents Lakebase Help Request

You have reached the end of your chat history.

Latest News Dashboard 8h ago

Search content

BBC News

url	headline
<a href="https://www.bbc.com/news/uk-wales-politics-68381624">https://www.bbc.com/news/uk-wales-politics-68381624</a>	Rishi Sunak backs protesting farmers at Welsh Cons...
<a href="https://www.bbc.com/news/uk-scotland-north-east-orkney-shetland-63755475">https://www.bbc.com/news/uk-scotland-north-east-orkney-shetland-63755475</a>	Scientists say eight glasses of water a day may be tc...
<a href="https://www.bbc.com/news/world-49434667">https://www.bbc.com/news/world-49434667</a>	G7: What is it and what could it do about the Ukraine...
<a href="https://www.bbc.com/news/uk-northern-ireland-68453029">https://www.bbc.com/news/uk-northern-ireland-68453029</a>	Casement Park: Redevelopment could cost more tha...
<a href="https://www.bbc.com/news/world-europe-67427422">https://www.bbc.com/news/world-europe-67427422</a>	Ukraine war: The Russians snitching on colleagues a...
<a href="https://www.bbc.com/news/uk-england-norfolk-63421453">https://www.bbc.com/news/uk-england-norfolk-63421453</a>	Solar farms 'vital' part of renewable energy mix, say...
<a href="https://www.bbc.com/travel/article/20240523-sardinia-the-mediterranean-isle-where-hikers-stay-for-free">https://www.bbc.com/travel/article/20240523-sardinia-the-mediterranean-isle-where-hikers-stay-for-free</a>	Sardinia: The Mediterranean isle where hikers stay fc...

< 1 2 3 4 5 ... 55 >

CNN News

url	headline
<a href="https://www.cnn.com/2021/05/26/middleeast/israel-political-stalemate-intl-cmd/index.html">https://www.cnn.com/2021/05/26/middleeast/israel-political-stalemate-intl-cmd/index.html</a>	Israel's political stalemate is unmoved by the conflict...
<a href="https://www.cnn.com/2021/06/15/asia/swarm-robots-hong-kong-warehouse-hnk-spc-intl/index.html">https://www.cnn.com/2021/06/15/asia/swarm-robots-hong-kong-warehouse-hnk-spc-intl/index.html</a>	This swarm of robots gets smarter the more it works...
<a href="https://www.cnn.com/2021/12/09/tech/facebook-meta-myanmar-tatmadaw-intl-hnk/index.html">https://www.cnn.com/2021/12/09/tech/facebook-meta-myanmar-tatmadaw-intl-hnk/index.html</a>	Meta bans businesses run by Myanmar's military from...
<a href="https://www.cnn.com/middleeast/live-news/israel-hamas-war-gaza-news-10-30-23/index.html">https://www.cnn.com/middleeast/live-news/israel-hamas-war-gaza-news-10-30-23/index.html</a>	thought to number about 1 million people. Myanmar...
<a href="https://www.cnn.com/2021/04/05/opinions/israel-election-netanyahu-miller/index.html">https://www.cnn.com/2021/04/05/opinions/israel-election-netanyahu-miller/index.html</a>	October 30, 2023 - Israel-Hamas war news...
<a href="https://www.cnn.com/2020/02/04/opinions/bloomberg-benefits-from-iowa-fiasco-opinion-wiersom/index.html">https://www.cnn.com/2020/02/04/opinions/bloomberg-benefits-from-iowa-fiasco-opinion-wiersom/index.html</a>	Israel's election aftermath: The good, the bad and th...

< 1 2 3 4 5 ... 49 >

Reuters News

url	headline
<a href="https://www.reuters.com/lifestyle/sports/man-utds-ten-hag-backs-disappointed-rashford-quick-return-2023-04-12/">https://www.reuters.com/lifestyle/sports/man-utds-ten-hag-backs-disappointed-rashford-quick-return-2023-04-12/</a>	Man Utd's Ten Hag backs 'disappointed' Rashford fo...
<a href="https://www.reuters.com/lifestyle/sports/cavollo-becomes-first-active-a-league-player-come-out-gay-2021-10-27/">https://www.reuters.com/lifestyle/sports/cavollo-becomes-first-active-a-league-player-come-out-gay-2021-10-27/</a>	Cavollo becomes first active A-League player to com...
<a href="https://www.reuters.com/sports/soccer/stats-show-differing-approaches-attacking-germany-sparkle-euro-2024-2024-06-23/">https://www.reuters.com/sports/soccer/stats-show-differing-approaches-attacking-germany-sparkle-euro-2024-2024-06-23/</a>	Stats show differing approaches as attacking Germa...
<a href="https://www.reuters.com/lifestyle/sports/english-leagues-announce-tougher-sanctions-smoke-bombs-invasions-2022-07-25/">https://www.reuters.com/lifestyle/sports/english-leagues-announce-tougher-sanctions-smoke-bombs-invasions-2022-07-25/</a>	English leagues announce tough new rules against d...

< 1 2 3 4 5 ... 49 >

david.vincent@databrick... Powered by Databricks



Databricks		Lakebase	+ Add User
Home	Chat	Dashboard	
News	Documents	Lakebase	
Today	Help Request	You have reached the end of your chat history.	
Lakebase Demo			
Users from lakebase_demo.users database (click edit to modify)			
Name	Date of Birth	Phone	Actions
David Vincent	11/10/2020	555-8888	 
David Wilson	5/18/1982	555-0105	 
Emily Davis	1/7/1995	555-0104	 
Emily Gonzales	1/7/1995	555-0104	 
Emma Martinez	4/16/1987	555-0108	 
Emma Martinez	4/16/1987	555-0108	 
James Taylor	12/2/1992	555-0107	 
James Taylor	12/2/1992	555-0107	 
Jane Smith	7/21/1990	555-0102	 
Jane Smith	7/21/1990	555-0102	 
John Doe	3/14/1985	555-0101	 
John Doe	3/14/1985	555-0101	 
Lisa Garcia	6/27/1980	555-0110	 
Lisa Garcia	6/27/1980	555-0110	 

## Requirements

- Terraform, Databricks CLI, JQ
  - Databricks account admin

## Variables settings

1. For the workspace creation, update the variables in the terraform.tfvars file  
( terraform/account/terraform.tfvars )
  2. For the application, update the variables in the databricks.yml file  
(dabs/databricks.yml)  
You only need to update the default value for the profile, email, catalog, schema  
Leave the other values as is

## Installation

Some components do not have APIs yet. Some manual steps, described below, are required.

1. In a terminal, go to the root folder of the demo and run

```
./deploy.sh
```

When asked, run the manual configuration steps

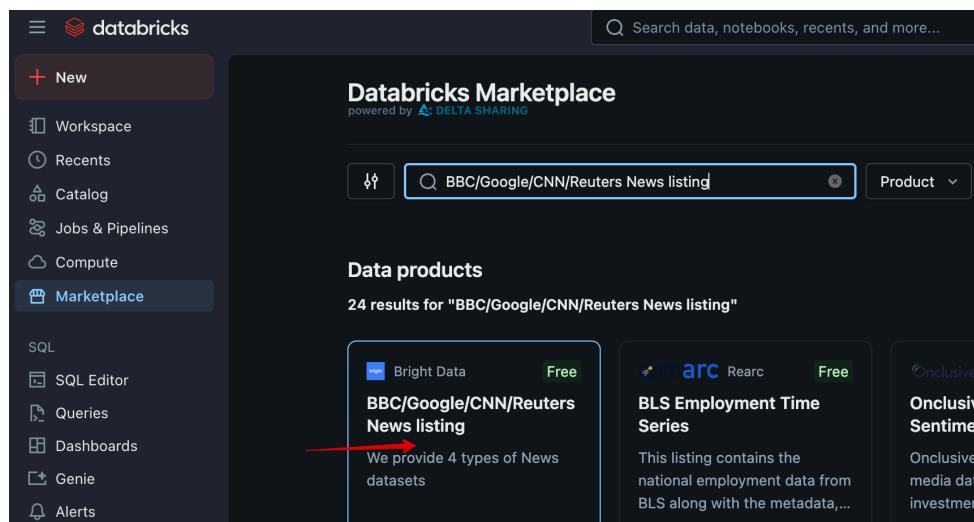
2. Marketplace

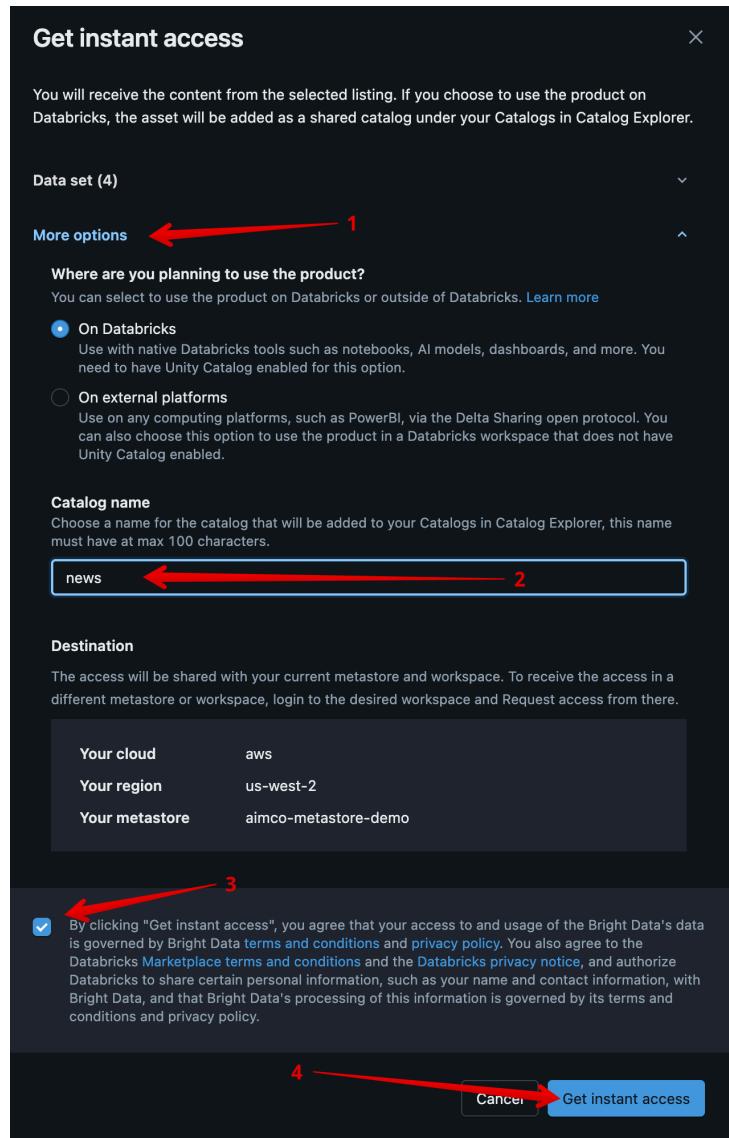
!-!

ACTION REQUIRED: manually create the marketplace tables called 'news' from the UI

!-!

- In the Databricks UI, click on Marketplace
- In the search box, type 'BBC/Google/CNN/Reuters News listing'
- Click 'Get instant access'





### 3. Create Catalog

ACTION REQUIRED: manually create the catalog with the same name as the one have set in the databricks.yml file. Press enter to continue (Currently a bug)

-----

The screenshot shows the Databricks interface with the sidebar open. The sidebar menu includes:

- + New
- Workspace
- Recents
- Catalog** (highlighted with a red arrow labeled 1)
- Jobs & Pipelines
- Compute
- Marketplace
- SQL
- SQL Editor
- Queries

The main area is titled "Catalog" and shows a section for "Serverless Starter Ware". It includes a search bar ("Type to search...") and two tabs: "For you" (selected) and "All". Below this, there's a list of items under "My organization":

- > system
- > Delta Shares Received
- > samples
- > news

To the right, a sidebar menu lists various actions:

- Add data
- Ingest via partner
- Upload to volume
- Create a catalog** (highlighted with a red arrow labeled 2)
- Create an external location
- Create a volume
- Create a credential
- Create a connection

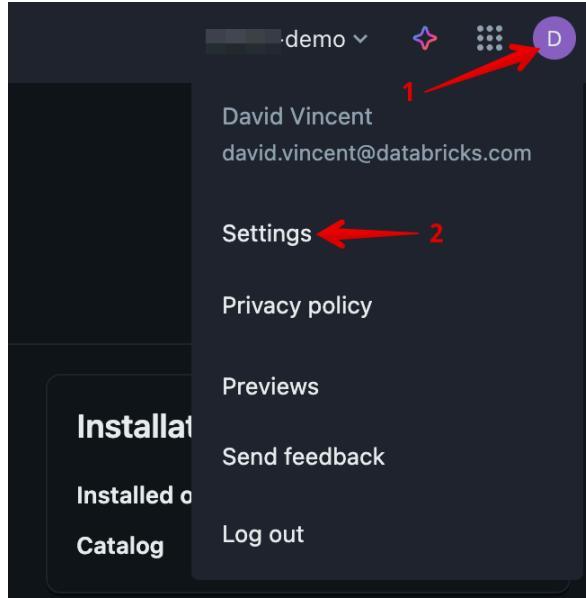
A modal window titled "Create a new catalog" is open at the bottom. It contains fields for "Catalog name\*" (set to "democ"), "Type\*" (set to "Standard"), and "Storage location". A checkbox "Use default storage" is checked. A note at the bottom states: "Catalogs that use default storage are only accessible from this workspace by default. You can grant other workspaces access, but they must use serverless compute to access data in the catalog." Buttons for "Cancel" and "Create" are at the bottom right.

#### 4. Assign Default Catalog

-----

**ACTION REQUIRED:** in the UI, set the workspace default catalog to the catalog you have just created

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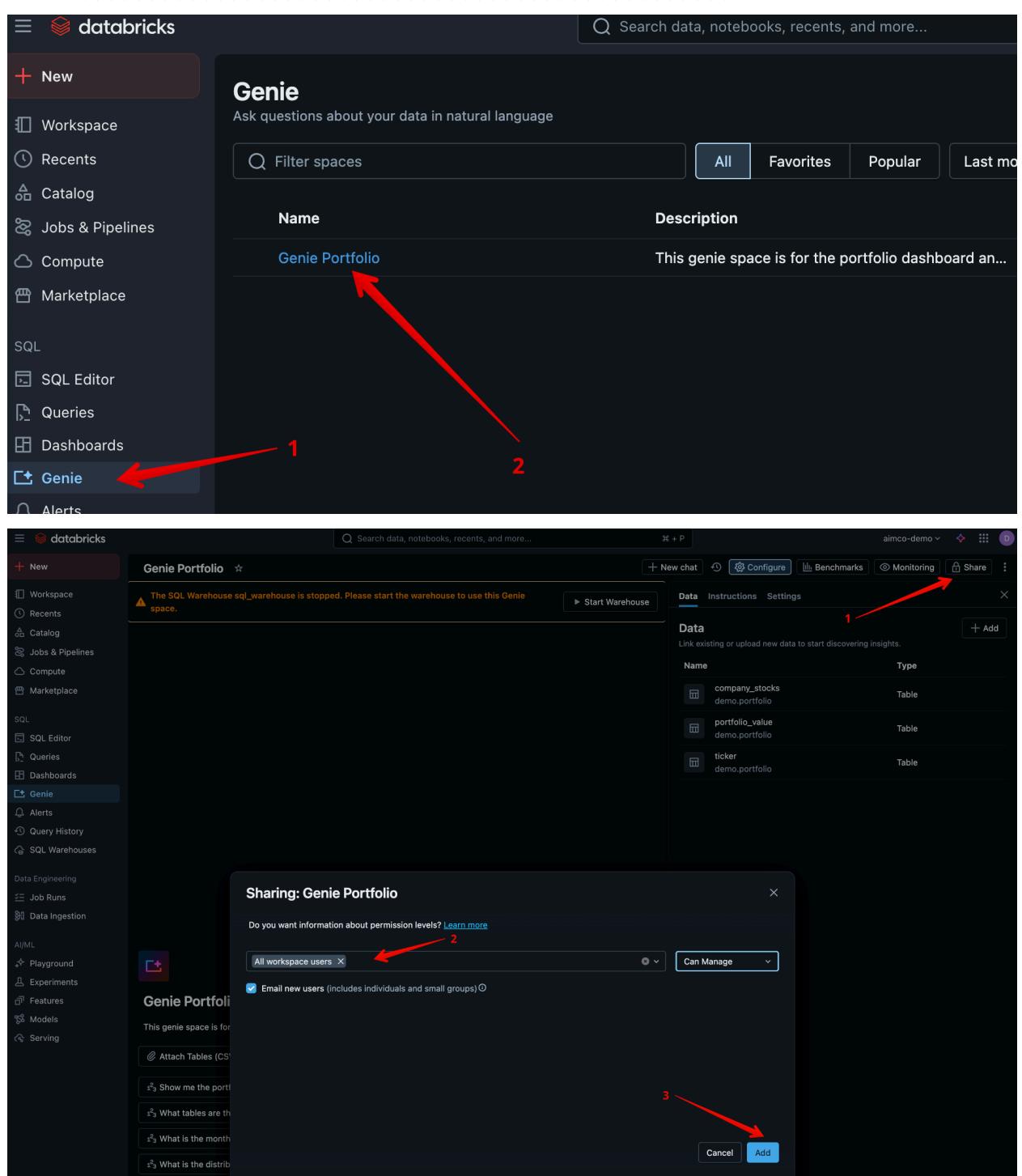


A screenshot of the Databricks Settings page. On the left, there is a sidebar with various options: Workspace admin (selected), Appearance, Identity and access, Security, Compute, Development, Notifications, Advanced (selected), User (selected), Profile, Preferences, Developer, Linked accounts, and Notifications. A red arrow labeled '1' points to the 'Advanced' button in the sidebar. A red arrow labeled '2' points to the 'Storage' section in the main content area. The main content area is titled 'Advanced' and contains sections for Access control, Storage, External integrations, and Other. Under 'Other', it says 'Default catalog for the workspace: **hive\_metastore**'. A red arrow labeled '3' points to the input field where 'hive\_metastore' is typed. A red arrow labeled '4' points to the 'Save' button next to the input field.

## 5. Genie Space permission

!-!

ACTION REQUIRED: Manually grant access to the Genie space to all users



## 6. Activate multiple previews

ACTION REQUIRED: Activate the preview feature 'Mosaic AI Agent Bricks Preview' in the UI and press enter to continue

!-!

!-!

ACTION REQUIRED: Activate the preview feature 'External Tool Calling for Agents' in the UI and press enter to continue

!-!

!-!

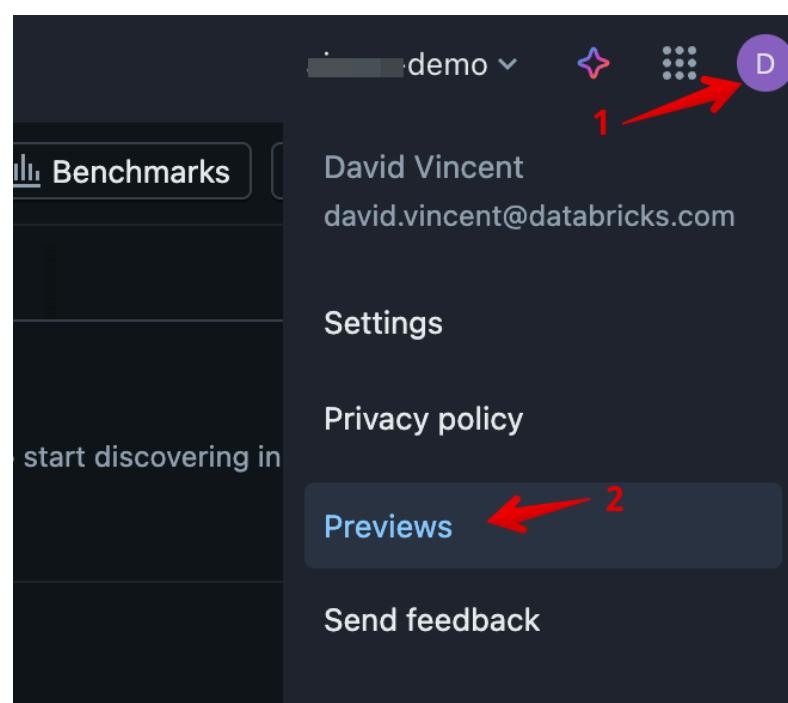
ACTION REQUIRED: Activate both preview features 'On-Behalf-Of-User Authorization' in the UI and press enter to continue

!-!

!-!

ACTION REQUIRED: Activate the preview features 'Managed MCP Servers' in the UI and press enter to continue

!-!



## 7. Dashboard embedding

!-!

ACTION REQUIRED: Grant access to allow dashboard embedding (Settings/security/embed dashboard) and press enter to continue

The screenshot shows the Databricks Settings interface. On the left sidebar, under 'Settings' (highlighted with a red arrow labeled '2'), the 'Security' option is selected. In the main 'Security' section, there's a dropdown menu for 'Default access mode for job compute' set to 'Not set'. Below this is the 'External access' section, which includes an 'Embed dashboards' configuration. A dropdown menu here is set to 'Allow approved domains' (highlighted with a red arrow labeled '3'). Other options in this dropdown are 'Allow' and 'Deny'.

## 8. Knowledge Assistant creation (you might need to refresh the browser to see the Agents menu)

The screenshot shows the Databricks Agents page. On the left sidebar, the 'Agents' option is highlighted with a red arrow labeled '1'. The main area displays two 'Choose your use case' cards: 'Information Extraction' (Beta) and 'Knowledge Assistant' (Beta). The 'Information Extraction' card has several sub-options like 'Classification', 'Sentiment analysis', 'Entity resolution', 'Extraction', and 'Summarization', along with 'Use PDFs' and 'Build' buttons. The 'Knowledge Assistant' card has sub-options like 'RAG', 'Document Q&A', and a 'Build' button. A red arrow labeled '2' points to the 'Build' button in the 'Knowledge Assistant' card. At the bottom, there are search and filter fields, and a message stating 'No Agents available yet'.

Enter the following under Basic Info

**Name:** knowledge-assistant-rag

**Description:** RAG Chatbot for financial documentation, including 10K, 10Q and earning calls

Enter the following under Configure Knowledge Sources

**Source:** demo/portfolio/artifacts/pdf

**Describe the content:** Financial PDF documents, including 10K, 10Q and earning calls

## Create Knowledge Assistant Agent

**Overview**  
Knowledge Assistant turns your documents—like PDFs, Word files, and more—into a high-quality Q&A chatbot. It uses advanced AI to deliver accurate, reliable answers from your content with no coding or complex setup required. Ideal for product documentation, customer support knowledge bases, regulatory documents, and more. Agent Bricks may use endpoints hosted on Databricks Inc. [Documentation & License](#)

**Basic Info**

**Name**  
Only letters, numbers, and dashes are allowed

**Description**  
Describe what your agent can do. For example: answer questions about HR policy docs

**Configure Knowledge Sources**  
Select up to 10 different knowledge sources to use in your knowledge assistant.

Type	Source	Name
UC Files	/Volumes/demo/portfolio/artifacts/pdf/	pdf

**Describe the content**  
Try to describe in as much detail as possible what content is in the knowledge source. The agent will use it to understand when to use this data source.

**Optional >**

[Cancel](#) [Create Agent](#)

Once created, keep in mind it might take a couple of minutes to parse all documents...

## 9. Multi-Agent Supervisor

!-!

ACTION REQUIRED: Create the Multi-agent Supervisor

!-!

The screenshot shows the 'Agents' section of the 'Agent Bricks' interface. On the left sidebar, under 'AI/ML', the 'Agents' option is highlighted with a red arrow labeled '1'. The main area displays four use cases: 'Information Extraction' (Beta), 'Knowledge Assistant' (Beta), 'AI/BI Genie', and 'Multi-Agent Supervisor' (Beta). The 'Multi-Agent Supervisor' card is selected, indicated by a red arrow labeled '2'. It describes the feature as 'Design an AI system with Genie, agents, tools' and includes 'Tool-calling' and 'Agent orchestration' sub-options. Below the cards, there's a search bar, a filter for 'problem type', and a checkbox for 'Owned by me'. A table lists existing agents: 'knowledge-assistant-rag' (Knowledge Assistant, endpoint ka-b732afe6-endpo..., last modified January 7, 2026 10:20 PM).

**Name:** multi-agent-supervisor

**Description:** This Multi-Agent Supervisor answers questions on financial data. It includes Genie for structure data, RAG endpoint for PDF documents and functions to get news sentiment on various companies.

## Create Multi-Agent Supervisor

**Overview**

Multi-Agent Supervisor lets you combine Genie spaces, other agents, and tools together in a powerful agent system that can answer questions and take actions. It uses advanced techniques in AI to build the system for you and improves over time with feedback – no coding or complex setup required. Ideal for providing insights across all your structured and unstructured data, assisting users with your platform, and more. Agent Bricks may use endpoints hosted on Databricks Inc. [Documentation & License](#)

**Name**

multi-agent-supervisor

**Description**

Describe what your agent can do. For example: answers questions in marketing across structured and unstructured data.

This Multi-Agent Supervisor answers questions on financial data. It includes Genie for structure data, RAG endpoint for PDF documents and functions to get news sentiment on various companies.

**Configure Agents**

Select up to 20 different agents and tools your supervisor can use.

**agent-genie-portfolio**

Type	Genie space	Agent Name
Genie Space	Genie Portfolio	agent-genie-portfolio

**Describe the content**

Try to describe in as much detail as possible what this agent can do. The supervisor will use that information for coordination.

This genie space is for the portfolio dashboard and provides insights for the portfolio

**knowledge-assistant-rag**

**Only Knowledge Assistant agents are supported**

For initial launch, only Knowledge Assistant agents are supported. In the near future other agent endpoints will be supported.

Type	Agent Endpoint	Agent Name
Agent Endpoint	ka-b732afe6-endpoint	knowledge-assistant-rag

**Describe the content**

Try to describe in as much detail as possible what this agent can do. The supervisor will use that information for coordination.

RAG Chatbot for financial documentation, including 10K, 10Q and earning calls

**function-company-sentiment-articles**

Type	Unity Catalog function	Agent Name
Unity Catalog Function	demo.portfolio.company_sentiment_articles	function-company-sentiment-

**Describe the content**

Try to describe in as much detail as possible what this agent can do. The supervisor will use that information for coordination.

Returns the sentiment of specific news articles a for a specic company

**function-company-sentiment-count**

Type	Unity Catalog function	Agent Name
Unity Catalog Function	demo.portfolio.company_sentiment_count	function-company-sentiment-

**Describe the content**

Try to describe in as much detail as possible what this agent can do. The supervisor will use that information for coordination.

Returns the sentiment of the market from news article and count per sentiment for a specic company

**function-company-sentiment-percentage-distribution**

Type	Unity Catalog function	Agent Name
Unity Catalog Function	demo.portfolio.company_sentiment_percentage_distribution	function-company-sentiment-

**Describe the content**

Try to describe in as much detail as possible what this agent can do. The supervisor will use that information for coordination.

Returns the sentiment percentage distribution of the market from news article for a specic company

Copy the Endpoint and paste it in the CLI

Name	Problem type	Endpoint	Last modified
multi-agent-supervisor	Multi-Agent Supervisor	mas-07b6769e-end...	January 7, 2026 10:26 PM
knowledge-assistant-rag	Knowledge Assistant	ka-b732afe6-endpo...	January 7, 2026 10:20 PM

## 10. Apps permissions to Agent Bricks

!-!

ACTION REQUIRED: Manually assign the app Service Principal the right to use the Multi-agent Supervisor and the Knowledge Assistant Agent endpoints

!-

The screenshot shows the Databricks interface. On the left sidebar, under the 'Compute' section, the 'Compute' button is highlighted with a red arrow labeled '1'. In the main 'Compute' view, the 'Apps' tab is selected, indicated by a red arrow labeled '2'. A list of apps is shown, with 'portfolio-chatbot-app' highlighted in blue and a red arrow labeled '3' pointing to it. Below the app list, there is an 'Authorization' tab, which is currently selected, and a 'Copy' button next to the service principal information.

Compute

SQL warehouses Vector Search Apps Lakebase Provisioned

Filter by keyword

Owned by me Compute status

Installed from Marketplace 1 match

Name

portfolio-chatbot-app

Compute

Active

Compute > Apps >

portfolio-chatbot-app

Overview Authorization Deployments Logs Insights Beta Environment

App authorization

Service principal: app-54ride portfolio-chatbot-app

Copy

Use this service principal to execute actions on behalf of the app. The service principal's client ID and

In BOTH agents, assign the Service Principle permission to query the endpoint

The screenshot shows the Databricks Multi-Agent Supervisor interface. On the left, there's a sidebar with 'Basic Info' and 'Configure Agents' sections. The main area is titled 'Permission Settings'. It lists two entries under 'NAME': 'app-54ride portfolio-chatbot-app (9c3d1aea-6067-4aeb-b000-...)' and 'Admins'. Under each entry, there are dropdown menus for 'PERMISSION' with options like 'Can Query' and 'Can Manage', both of which have an 'x' icon indicating they are currently selected. A button 'Add' is available to add more users. At the bottom right of the permission dialog are 'Cancel' and 'Save' buttons.

## 11. Copy the lakebase variables from the APP

!-!

ACTION REQUIRED: Copy the lakebase variables in the file dabs/lakebase/lakebase\_variable.sh  
!-!

The screenshot shows the Databricks Compute > Apps interface. An app named 'portfolio-chatbot-app' is selected. The 'Environment' tab is active. Below it, the 'Environment JSON' section displays a large block of JSON code representing environment variables. A red rectangular box highlights a specific block of variables starting with 'PGAPPNAME=portfolio-chatbot-app', 'PGDATABASE=databricks\_postgres', 'PGHOST=instance-331cbe...', 'PGPORT=5432', 'PGSSLMODE=require', and 'PGUSER=9c3d1...b8b36a8a1'. These variables are part of a larger configuration block for a PostgreSQL database connection.

```
1 {
2   "runtime": "Python 3.11.14; Node.js v22.16.0",
3   "env_variables": [
4     "DATABRICKS_APP_NAME=portfolio-chatbot-app",
5     "DATABRICKS_APP_PORT=8000",
6     "DATABRICKS_APP_URL=https://portfolio-chatbot-... .com",
7     "DATABRICKS_CLIENT_ID=...",
8     "DATABRICKS_CLIENT_SECRET=***",
9     "DATABRICKS_HOST=...",
10    "DATABRICKS_SERVING_ENDPOINT=mas-07b6769e-endpoint",
11    "DATABRICKS_WORKSPACE_ID=...",
12    "FLASK_RUN_HOST=0.0.0.0",
13    "FLASK_RUN_PORT=8000",
14    "GRADIO_ANALYTICS_ENABLED=false",
15    "GRADIO_SERVER_NAME=0.0.0.0",
16    "GRADIO_SERVER_PORT=8000",
17    "PATH=/usr/local/bin:/usr/bin/:bin:.venv/bin:node modules/.bin",
18    "PGAPPNAME=portfolio-chatbot-app",
19    "PGDATABASE=databricks_postgres",
20    "PGHOST=instance-331cbe... .cloud.databricks.com",
21    "PGPORT=5432",
22    "PGSSLMODE=require",
23    "PGUSER=9c3d1...b8b36a8a1",
24    "PORT=8000",
25    "PYTHONUNBUFFERED=1",
26    "STREAMLIT_BROWSER_GATHER_USAGE_STATS=false",
27    "STREAMLIT_SERVER_ADDRESS=0.0.0.0",
28    "STREAMLIT_SERVER_ENABLE_CORS=false",
29    "STREAMLIT_SERVER_ENABLE_XSRF_PROTECTION=false",
30    "STREAMLIT_SERVER_HEADLESS=true",
31    "STREAMLIT_SERVER_PORT=8000",
32    "UVICORN_HOST=0.0.0.0",
33    "UVICORN_PORT=8000"
```

## 12. Connect to Lakebase

The screenshot shows the Databricks Compute interface. On the left sidebar, under the 'Compute' section (marked with a red arrow 1), there are options for 'SQL Editor' and 'Queries'. The 'Lakebase Provisioned' tab is selected (marked with a red arrow 2). A callout box contains the text: 'New: Lakebase Postgres Autoscaling' and 'Includes autoscaling compute, branching, instant restore, and more. Access it from the Apps menu (upper-right corner)'. In the main table, a cluster named 'lakebase-portfolio' is listed (marked with a red arrow 3). The table has columns: Status, Name, Size (CU), and Creator.

Status	Name	Size (CU)	Creator
✓	lakebase-portfolio	2	david.vincent@databricks.com

Below the table, the 'Connection details' tab is selected in the sub-menu. It shows the connection string: `psql "host=instance-531cbea-fc470-4451-9a... port=5432 sslmode=require"`. There are buttons for 'Get OAuth Token' and 'Copy OAuth Token'.

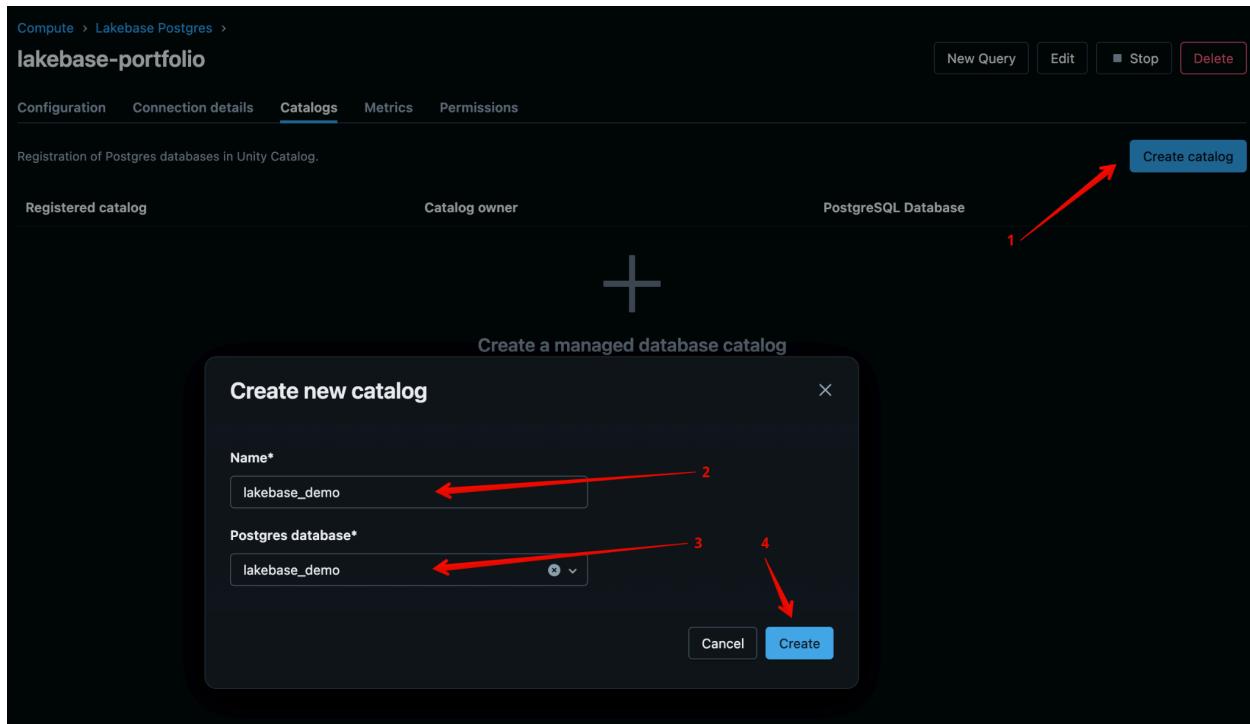
Paste in the CLI

Get OAuth Token + Copy OAuth token + Paste in the CLI

## 13. To sync the lakebase table

The screenshot shows the Databricks Compute interface. The 'Compute' section is selected in the sidebar. The 'Lakebase Provisioned' tab is selected. A callout box contains the text: 'New: Lakebase Postgres Autoscaling' and 'Includes autoscaling compute, branching, instant restore, and more. Access it from the Apps menu (upper-right corner)'. In the main table, there is one row for the cluster 'lakebase-portfolio'. The table has columns: Status, Name, Size (CU), and Creator.

Status	Name	Size (CU)	Creator
✓	lakebase-portfolio	2	david.vincent@databricks.com



## Local testing/development

1. cd dabs
2. dabs % ./dev\_locally.sh

## Deploy APP only

To deploy a new version of the app only, without deploying everything else:

1. cd dabs/apps
2. source ../login\_new\_workspace.sh
3. databricks bundle deploy --target dev
4. databricks bundle run databricks\_portfolio\_apps

## MISC

Question that leverages various agents in the same question, proving multi-agentic system:  
I want to know which stock I have the most and for that stock, give me the top 3 risks  
highlighted in the financial docs and what is the market sentiment from the news