

Data Explorer SQL AI API (Preview)

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Data Explorer SQL AI API

Overview

Learn about the SQL AI Assistant, which leverages Large Language Models (LLMs) to assist with various SQL tasks. The SQL AI Assistant is now available through a RESTful API, enabling programmatic access and integration with external tools.

Access method

RESTful API The RESTful API provides endpoints for clients and external tools to access SQL AI features.

Limitations

- This release it only support generate task
- Large schemas can result in slower response times
- The workflow is actively being optimized to improve accuracy and performance

SQL AI REST API documentation

Learn more comprehensive details about the AI Assistant API.

Base URL

`https://<hue-server-domain>/api/v1/ai/assistant`

- API Endpoint: `/api/v1/ai/assistant`
- Method: POST

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Request Headers

The following table lists the headers required for making requests

Header	Value	Description
Authorization	Bearer <your_cdp_access_token>	CDP access token for authentication
Content-Type	application/json	Request payload format

Request Body Parameters

The following table describes the fields in the request body, types, descriptions as follow:

Parameter	Type	Required	Description	Example
task	string	Yes	SQL AI functionality to perform. Generate is the only supported feature.	"generate"
dialect	string	Yes	SQL dialect for generation. Supported: hive, impala, trino.	"impala"
object_selectors	array	No	Optional array of strings identifying database and tables to constrain task scope. Note: If you do not define specific objects, the system automatically selects the most relevant databases and tables.	["sales_db.orders", "hr_db.employees"]
input	string	Yes	Natural language or Natural Query Language (NQL) describing the input..	"Retrieve count of active users grouped by country"
cache_mode	string	No	Cache policy for schema loading. Values: incremental (reuse loaded data), refresh (reload always).	"incremental"
db_top_k	integer	No	Number of top databases to consider for SQL generation. Default: 3.	3

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table_top_k	integer	No	Number of top tables per db to consider. Default: 10.	10
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Example Request

POST /api/v1/ai/assistant HTTP/1.1

Host: hue.company.com

Authorization: Bearer eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9...

Content-Type: application/json

```
{
  "task": "generate",
  "dialect": "impala",
  "object_selectors": ["sales_db.orders", "hr_db.employees"],
  "input": "Get the count of active users grouped by country",
  "cache_mode": "incremental",
  "db_top_k": 2,
  "table_top_k": 5
}
```

Response Body

The following table describes the fields in the response body, types, descriptions as follow:

Field	Type	Description	Example
sql	string	The generated or edited SQL query	"SELECT country, COUNT(*) FROM sales_db.orders WHERE status = 'active' GROUP BY country;"
assumptions	array	List of assumptions the AI made about input, schema, or intent	["Assuming 'active' status means status='active'"]
tables_used	array	List of database tables that the SQL references	["sales_db.orders"]

Example Response

```
{
  "response": "Generated SQL to get counts by country of active users.",
  "sql": "SELECT country, COUNT(*) as active_user_count FROM sales_db.orders WHERE status = 'active' GROUP BY country;",
  "assumptions": [
    "Assuming 'active' status means status='active'."
  ],
  "tables_used": [
    "sales_db.orders"
  ]
}
```

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Error Handling

The following table lists common HTTP status codes and descriptions to help with error handling:

HTTP Status Code	Reason	Description
400 Bad Request	Invalid or missing parameter	Returned when a required field is missing or invalid values are provided
401 Unauthorized	Missing or invalid token	Authentication failure; token missing, expired or invalid
403 Forbidden	Permission denied	User lacks permission to access endpoint or resource
500 Internal Server Error	Server error	Unexpected error occurred during processing

Enabling SQL AI Assistant API via UI

You can enable the SQL AI Assistant API capabilities via Data Explorer UI, add the following configuration to the Hue safety valve.

Steps:

1. After successful model deployment, log in to **Cloudera Data Warehouse** service.
2. Navigate to the Virtual Warehouses tab and select the desired Virtual Warehouse to enable.
3. Click **Edit > Configurations > Data Explorer(Hue)**.
4. From the Configuration files dropdown, select hue-safety-valve.
5. Add the following lines:

```
[[llm_provider]]
name='azure'
model_name='gpt-4o-hue'
api_version='2024-12-01-preview'
base_url='https://hue-ai-xxxx.openai.azure.com'
token='xxxxxxx'
assistant_api_enabled=true
```

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