

Hands-on Lab - Querying with GraphQL using Python



Estimated Time: 60 minutes

In this lab, you will become familiar with using GraphQL to query the APIs served through a GraphQL service running on a server using Postman.

Learning Objectives:

After completing this exercise, you should be able to perform the following tasks:

- Use GraphQL with Postman to access GraphQL Service
- Structure queries to access APIs to get selective information that you need

Pre-requisites

- You must be familiar with Docker applications and commands.
- You must have a good understanding of API.
- You must be familiar with using Postman.

Task 1 - Sign-up for Postman

If you already have a Postman account, you can skip this task.

1. On your browser, go to www.postman.com

Build APIs together

Over 20 million developers use Postman. Get started by signing up or downloading the desktop app.


[Sign Up for Free](#)

Download the desktop app

Windows Apple Linux

2. Click **Sign Up for Free**.


3. Enter your email and choose a password, confirm it, and create a free account. You can alternatively use your Google account to sign in too. You may notice that **Stay signed in for 30 days** is selected by default. It is highly recommended that you uncheck that option if you are not using a personal computer for this lab.



POSTMAN

Why sign up?

- Organize all your API development within Postman Workspaces
- Sync your Postman data across devices
- Backup your data to the Postman cloud
- It's free!



Create Postman Account

[Sign In](#) instead?

Email

Username

Password

[SHOW](#)


☐ Sign up to get product updates, news, and other marketing communications.

☒ Stay signed in for 30 days

By creating an account, I agree to the [Terms](#) and [Privacy Policy](#).

[Create free account](#)

or

 [Sign up with Google](#)

[Sign in with SSO](#)

You have successfully created a Postman account.

Task 2 - Run a GraphQL service

1. Open a terminal window by using the top menu in the IDE: **Terminal > New Terminal**.

2. In the terminal, clone the repository which has the GraphQL service code ready by pasting the following command. The repository that you clone has code that will run a GraphQL service where we can query details on US cities and states.

```
git clone https://github.com/ibm-developer-skills-network/jmgdo-microservices.git
```

3. Change the working directory to **jmgdo-microservices/graphql_example** by running the following command.

```
cd jmgdo-microservices/graphql_example
```

4. Build the application by running the following command. This will build the docker application using the docker file in the current directory and tag it **graphqlservice**.

```
docker build . -t graphqlservice
```

5. Run the application that you just built on port 8080, by running the following command on the terminal.

```
docker run -dp 8080:4000 graphqlservice
```

You will get a hex code that indicates the application has started.

6. To confirm that the service is running, execute the following command.

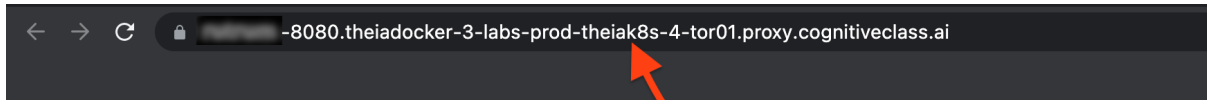
```
curl localhost:8080
```

```
theia@theiadocker- /home/project/jmgdo-microservices$ curl localhost:8080
Copy the URL from the address-bar, to paste in Postman to use GraphQL
```

If the output is as seen in the image above, your service is up and running.

7. Click on the Skills Network button on the left, it will open the "Skills Network Toolbox". Then click Launch Application, from there you enter the port no. as 8080 and click Your Application button. This will open a browser window.

8. This will launch a browser page. Copy the URL that you see in the address bar.



Copy the URL from the address-bar, to paste in Postman to use GrpahQL




Task 3 - Run GraphQL queries on Postman

1. Go to www.postman.com and sign in to Postman. Please note that the home page may look different for every person depending on the day of the year and the region you are signing in from.


2. On the homepage, click **Create new**.

HomeWorkspaces ▾API Network ▾Explore

Search Postman



Upgrade ▾



Postman works best with teams

Collaborate in real-time and establish a single source of truth for all API workflows.

Create Team

Workspaces >



Integrations >

Reports >

Good morning!

Pick up where you left off.

Recently visited workspaces

 My Workspace 

Get started with Postman

Start with something new

Create a new request, collection, or API in a workspace

Create New →


Import an existing file

Import any API schema file from your local drive or Github


Import file →

Announcements


Hide

 **apidays Australia** NEW

Postman is a proud sponsor of apidays Australia, a conference for diving into the business and technology of APIs. Don't mi...
Sep 14, 2022 - Sep 15, 2022 · Melbourne, Australia
[Register Now](#)

 **Open Source Summit Europe** NEW

Postman is delighted to sponsor Open Source Summit Europe in Dublin and virtual. Learn about the Postman open...
Sep 13, 2022 - Sep 16, 2022 · Dublin & Virtual
[Register Now](#)

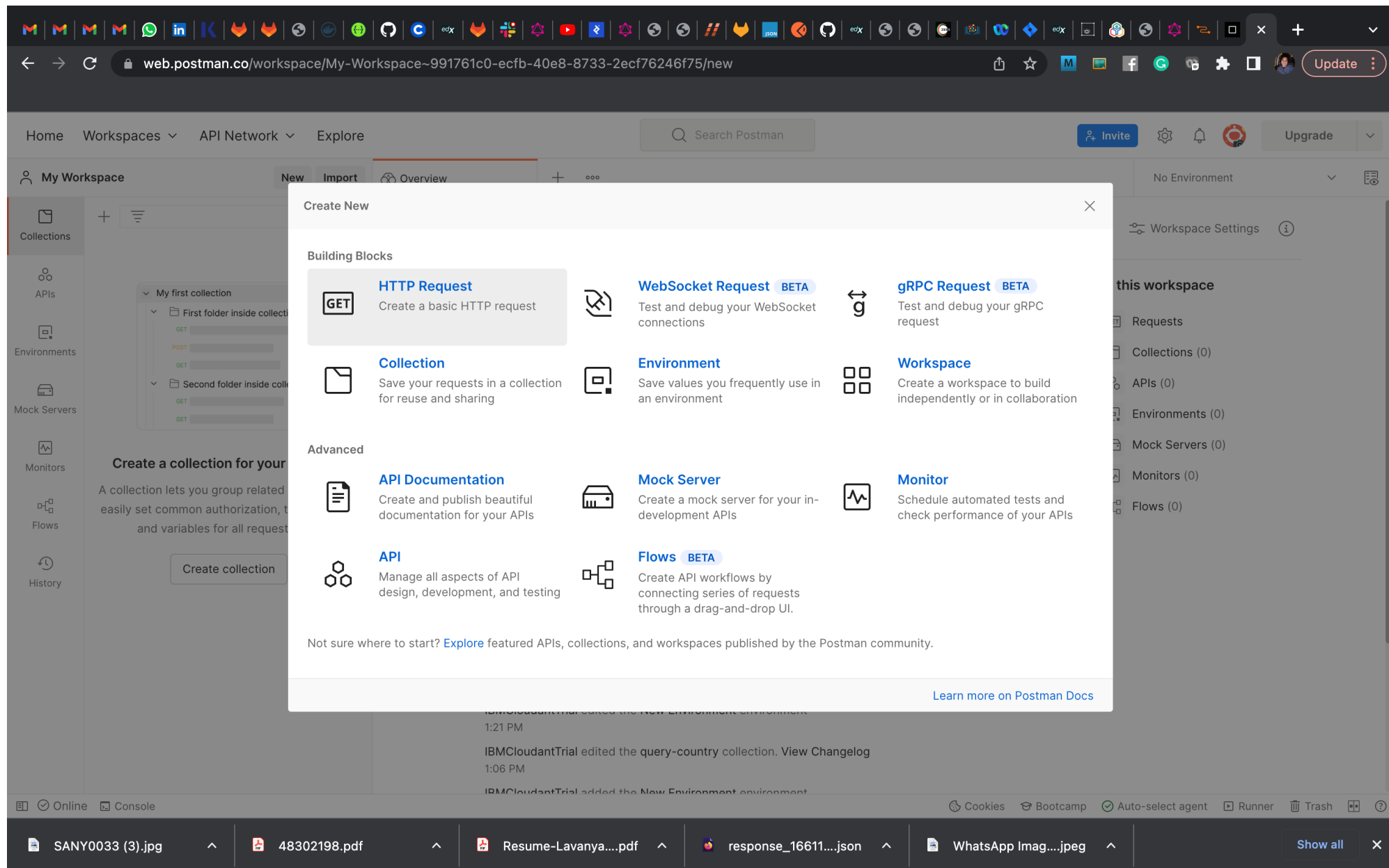
 **Aiven Uptime** NEW

Postman is a proud sponsor of Aiven Uptime, a conference for open source data in the cloud that brings together anyone...
Sep 14, 2022 - Sep 15, 2022 · Amsterdam
[Register Now](#)

3. This brings up the set of options you can use with Postman. Choose **HttpRequest**.

4 of 8

20/08/2025, 19:59



4. In the space provided for the **GET** request URL paste the URL you copied from step 8 of the previous task and suffix it with **/graphql**.

Overview

GET https://lavanyas-8080. +

No Environment

https://lavanyas-8080.theiadocker-3-labs-prod-theiak8s-4-tor01.proxy.cognitiveclass.ai/graphql

Save

GET

https://lavanyas-8080.theiadocker-3-labs-prod-theiak8s-4-tor01.proxy.cognitiveclass.ai/graphql

Send

Params

Authorization

Headers (6)

Body

Pre-request Script

Tests

Settings

Cookies

Query Params

	KEY	VALUE	DESCRIPTION		Bulk Edit
	Key	Value	Description		

5. Choose **Body** and **GraphQL** as shown in the image below to start entering your query. Method will change to **POST**.

https://lavanyas-8080.theiadocker-3-labs-prod-theiak8s-4-tor01.proxy.cognitiveclass.ai/graphql

Save

POST

https://lavanyas-8080.theiadocker-3-labs-prod-theiak8s-4-tor01.proxy.cognitiveclass.ai/graphql

Send

Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

Cookies

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

Auto-fetch

QUERY

GRAPHQL VARIABLES

1

1

6. You will first query for all the cities in the US. What you can get is the city name and the state they are in. Paste the following in the **Query** tab and click **Send**.

```
{
  cities {
    city
    state
  }
}
```

POST

https://lavanyas-8080.theiadocker-3-labs-prod-theiak8s-4-tor01.proxy.cognitiveclass.ai/graphql

Send

Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

Cookies

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

Auto-fetch

QUERY

```
1 {
2   cities {
3     city
4     state
5   }
6 }
```

GRAPHQL VARIABLES

1

Body

Cookies (1)

Headers (7)

Test Results

Status: 200 OK

Time: 885 ms

Size: 239.93 KB

Save Response

Pretty

Raw

Preview

Visualize

JSON

```
1 {
2   "data": {
3     "cities": [
4       {
5         "city": "Abbeville",
6         "state": "Louisiana"
7       },
8       {
9         "city": "Aberdeen",
10        "state": "Maryland"
11      }
12    ]
13  }
14 }
```

As you can see, it lists all the 5980 cities in the US in the output tab.

7. You can now try to retrieve just the names of the cities in a particular state. To do this, you need to pass the state as a parameter. You will now request the state name in the return value as you are querying only for one state.

```
{
  cities(state:"Florida") {
    city
  }
}
```

https://lavanyas-8080.theiadockernext-0-labs-prod-theiak8s-4-tor01.proxy.cognitiveclass.ai/graphql

GET

https://lavanyas-8080.theiadockernext-0-labs-prod-theiak8s-4-tor01.proxy.cognitiveclass.ai/graphql

Params

Authorization

Headers (10)

Body

Scripts

Settings

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

Auto Fetch

QUERY

```
1 {
2   cities(state:"Florida") {
3     city
4   }
5 }
```

GRAPHQL VARIABLES

1

As you can see, only the names of the cities in Florida are returned.

Additional Task

1. Construct a query to return all the cities in the state of "Ohio", along with the state name.
- Click here for the solution

Congratulations! You have learned to construct queries using GraphQL.

Tutorial details

Author: Lavanaya T S

Contributors: Pallavi Rai

© IBM Corporation. All rights reserved.