



Práctica MuleSoft Trainee

24.10.2022

—

Nely Hernández García

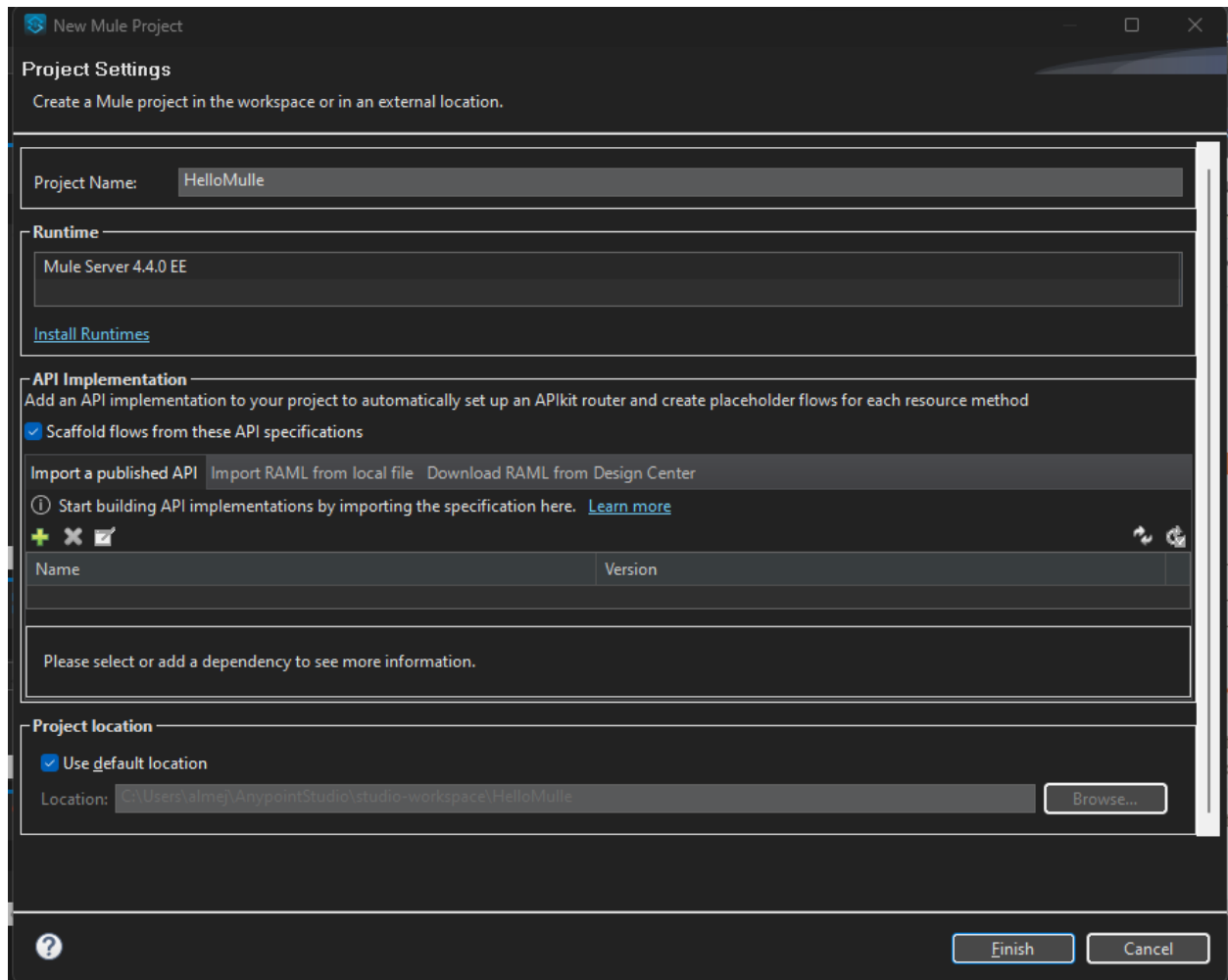


Index

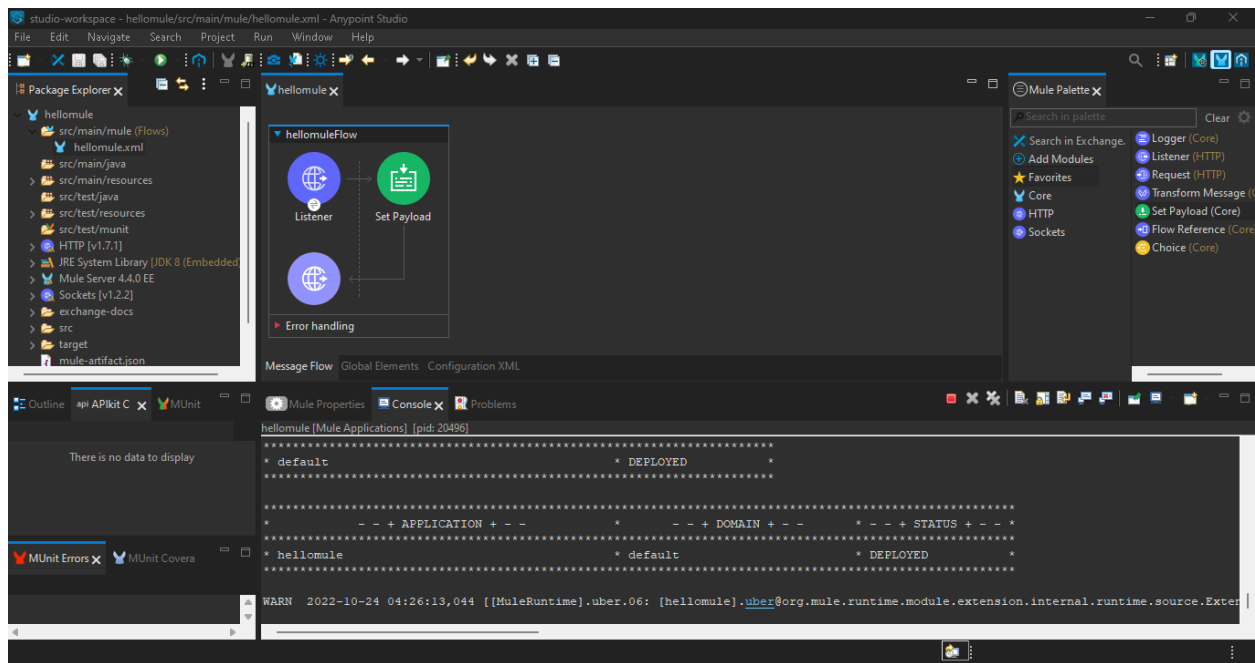
Build your first Hello Mule application	2
How to set up your global elements and properties files in Anypoint Studio	7
How to secure properties before deployment in Anypoint Studio	9
How to set up API Autodiscovery in Anypoint Studio	15
API design best practices and applying client ID enforcement	17
Best practices to design your first API Specification	21
Build your first API Specification with API Designer	22
How to configure an HTTPS endpoint in Anypoint Studio	25
GITHUB LINK:	26

Build your first Hello Mule application

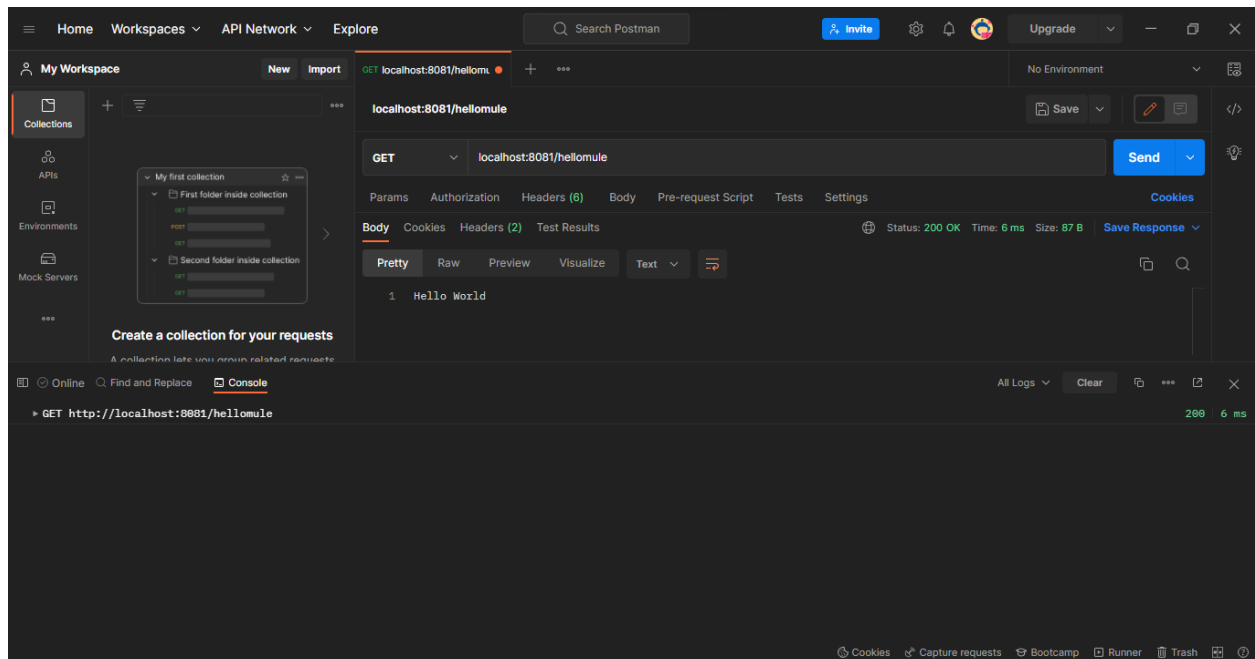
The first step was to create the project HelloMule




Then I added the listener and the set payload



I changed the settings of the payload to “Hello Mule” and the path of the listener so I could get a response from the Postman GET response which retrieved a “Hello Mule”. That’s how I knew I had successfully finished my first practice.





This meant it was time to deploy it on CloudHub. The application ran successfully and I could test it with Postman using the `hellomuletest3.us-e2.cloudhub.io/hellomule` address and retrieving a “Hello Mule”.

 **Anypoint Platform**


None NG

SANDBOX

Deploying Application

hellomuletest3  

Deployment Target

CloudHub 

Application File

Runtime

Properties

Insight


Logging


Static IPs


Runtime version


Worker size


Workers

4.4.0 

0.1 vCores 

1 

 To use Monitoring and Visualizer with this version, you may need to enable the agent after deploying. [Learn how](#)

 Your current subscription allows only one worker per application

☒ Automatically restart application when not responding

☐ Persistent queues | ☐ Encrypt persistent queues

☒ Use Object Store v2

Cancel

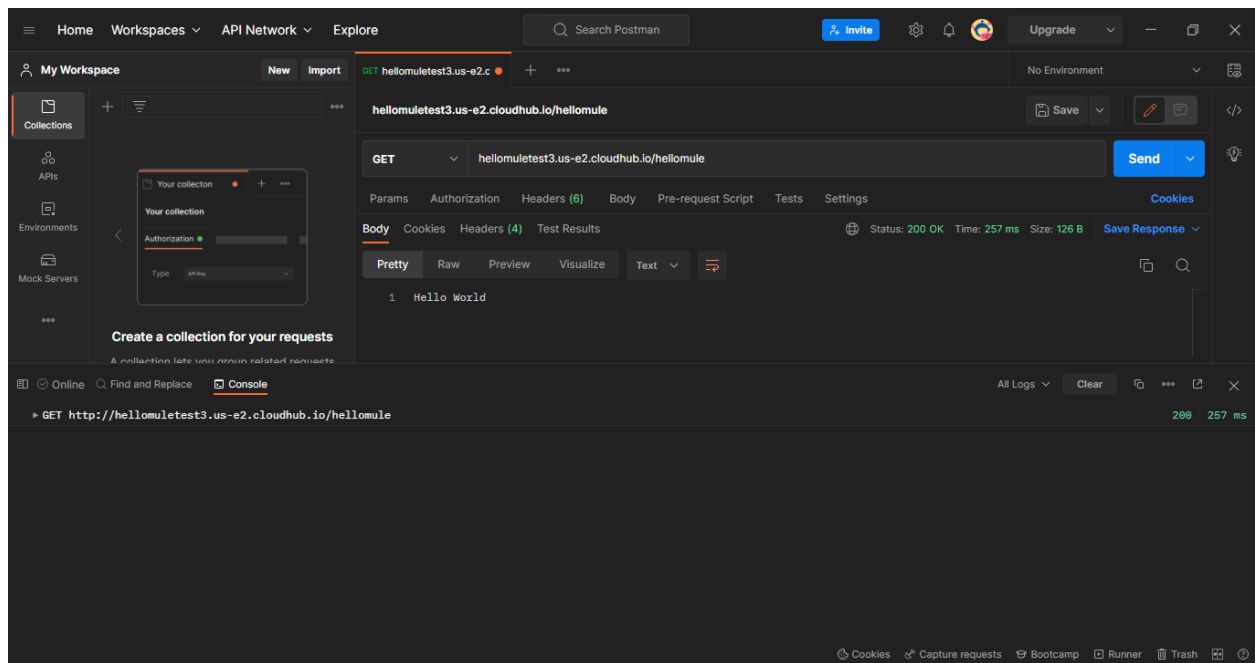
Deploy Application

The screenshot shows the Anypoint Runtime Manager console. The browser address bar displays `anypoint.mulesoft.com/cloudhub/#/console/home/applications`. The left sidebar contains navigation links: Applications, Servers, Flex Gateways (marked NEW), Alerts, VPCs, Private Spaces (marked NEW), and Load Balancers. The main area features a 'Deploy application' button and a search bar. Below, a table lists applications. One application, 'hellomuletest3', is shown with a status of 'Started' and a runtime version of '4.4.0'.

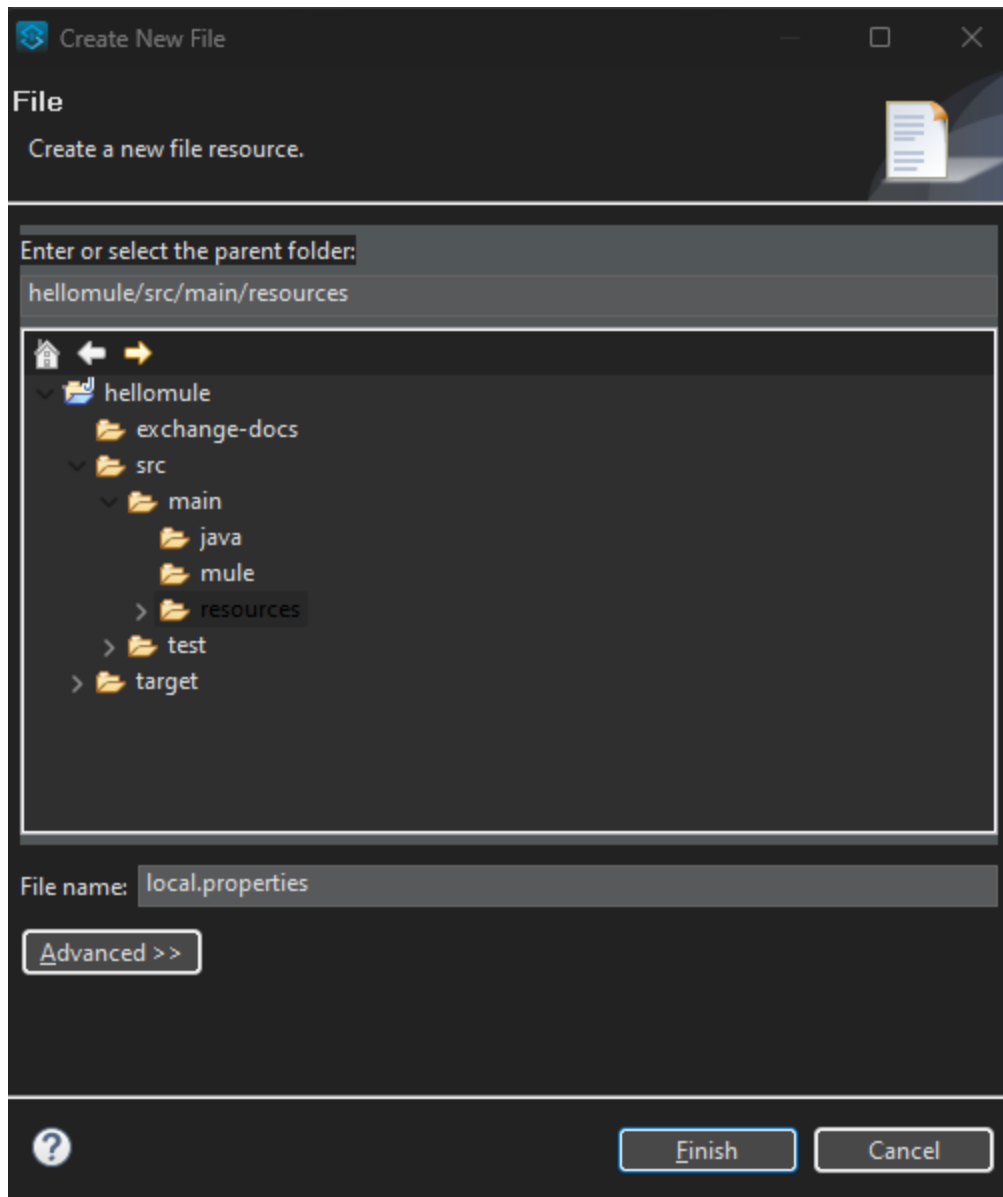
Name ^	Target Name	Target Type	Status	Runtime Version	Date Modified
hellomuletest3	CloudHub	CloudHub	Started	4.4.0	2022-10-24 04:37:35

This screenshot shows the 'Live Console' for the application 'hellomuletest3'. The left sidebar includes links for Dashboard, Insight, Logs (selected), Object Store, Queues, Schedules, and Settings. The main area displays a log table with columns for timestamp, date, worker, and message. The logs indicate a successful deployment and the start of the application. A 'Deployments' panel on the right shows the deployment history, including a successful deployment at 04:35.

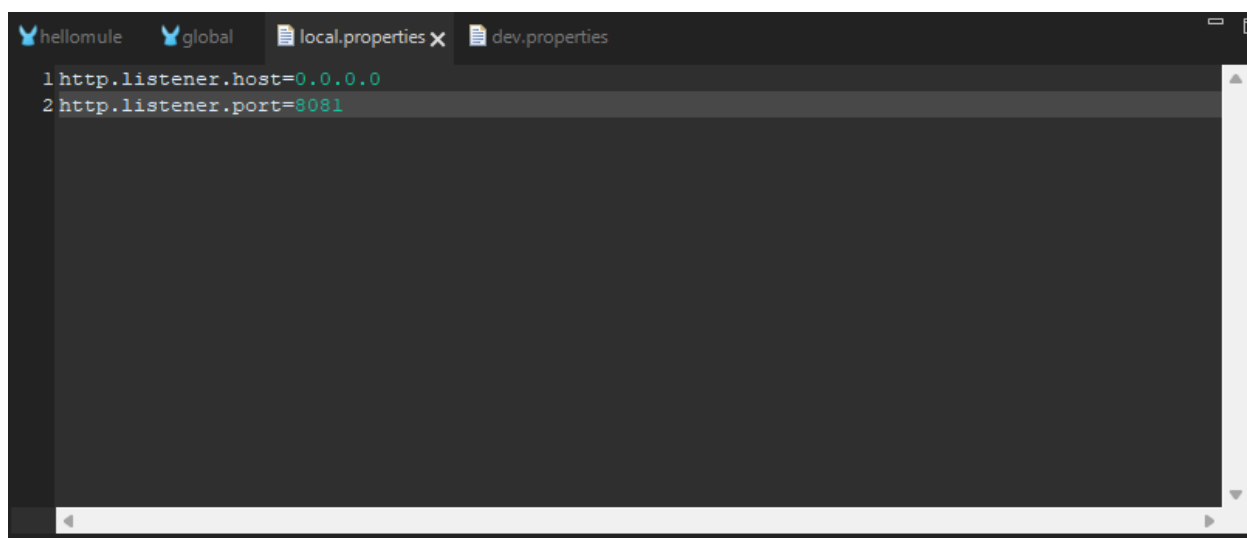
Timestamp	Date	Worker	Message
04:37:34.944	10/24/2022	Worker-0	ArtifactDeployer.start.01 INFO
04:37:35.225	10/24/2022	Deployment	system SYSTEM Worker(18.118.218.67): Your application has started successfully.
04:37:35.493	10/24/2022	Worker-0	[MuleRuntime].uber.01: [hellomuletest3].uber@org.mule.runtime.module.extension.internal.runtime.source.ExtensionMessageSource.lambda\$null\$17:435 @34103b54 INFO Message source 'listener' on flow 'hellomuleFlow' successfully started
04:37:36.122	10/24/2022	Deployment	system SYSTEM Your application is started.



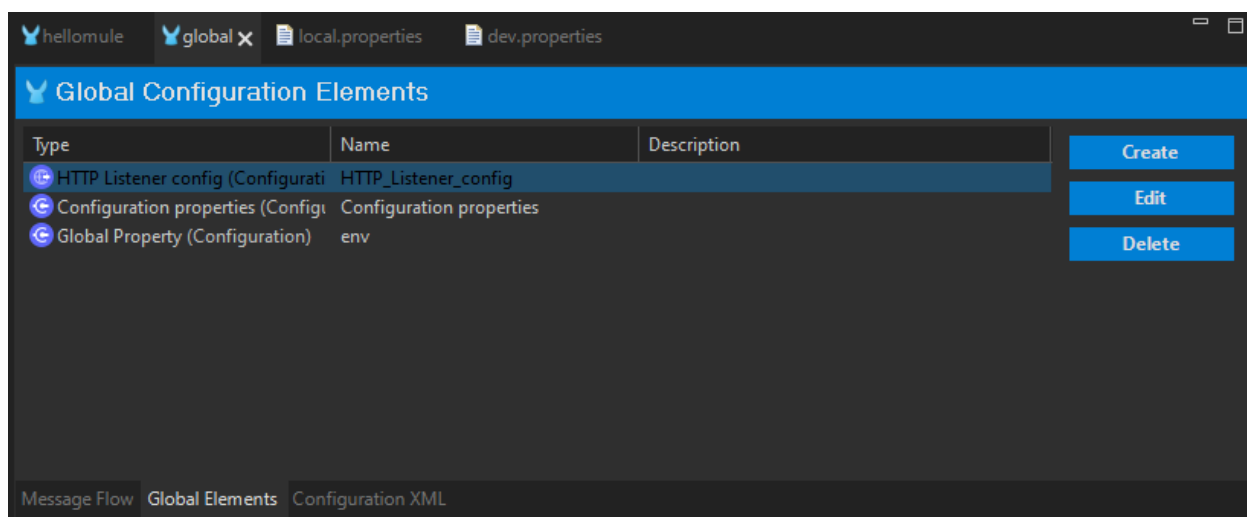
How to set up your global elements and properties files in Anypoint Studio



Then it was time to create the global elements which are a good practice in programming, keeping everything neat and organized. For that I created the local and dev properties files in which I set the port and host to avoid hardcoded values. Finally, I deployed my app and I got a positive result on Postman.

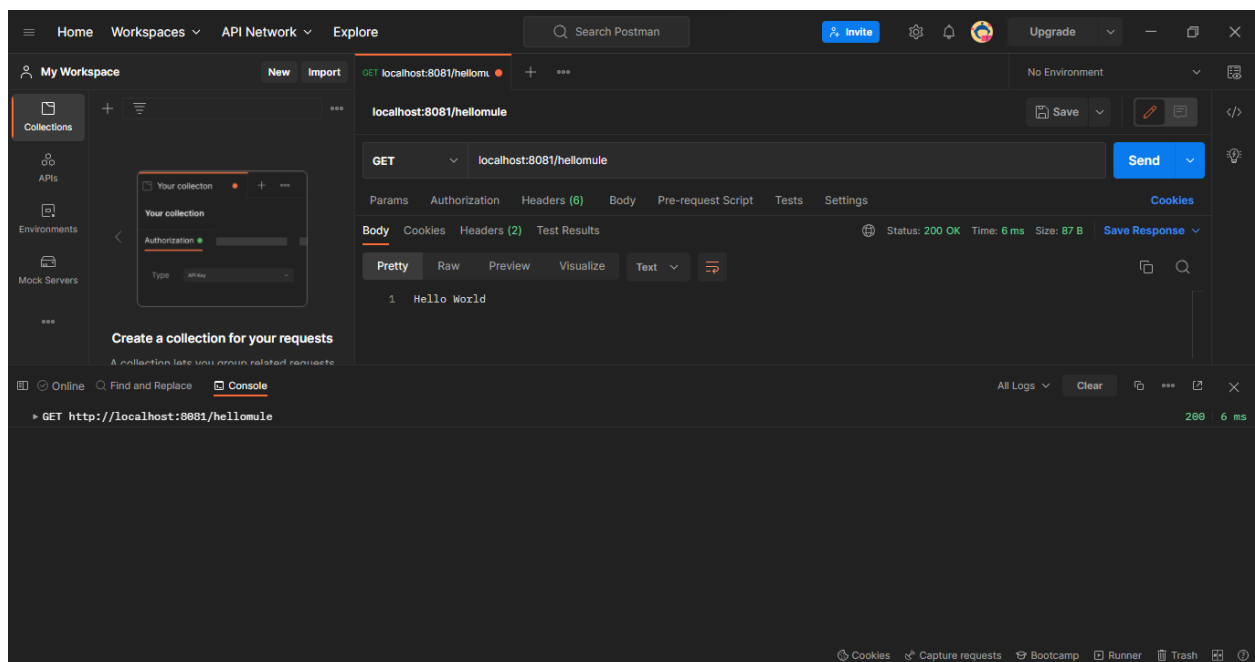
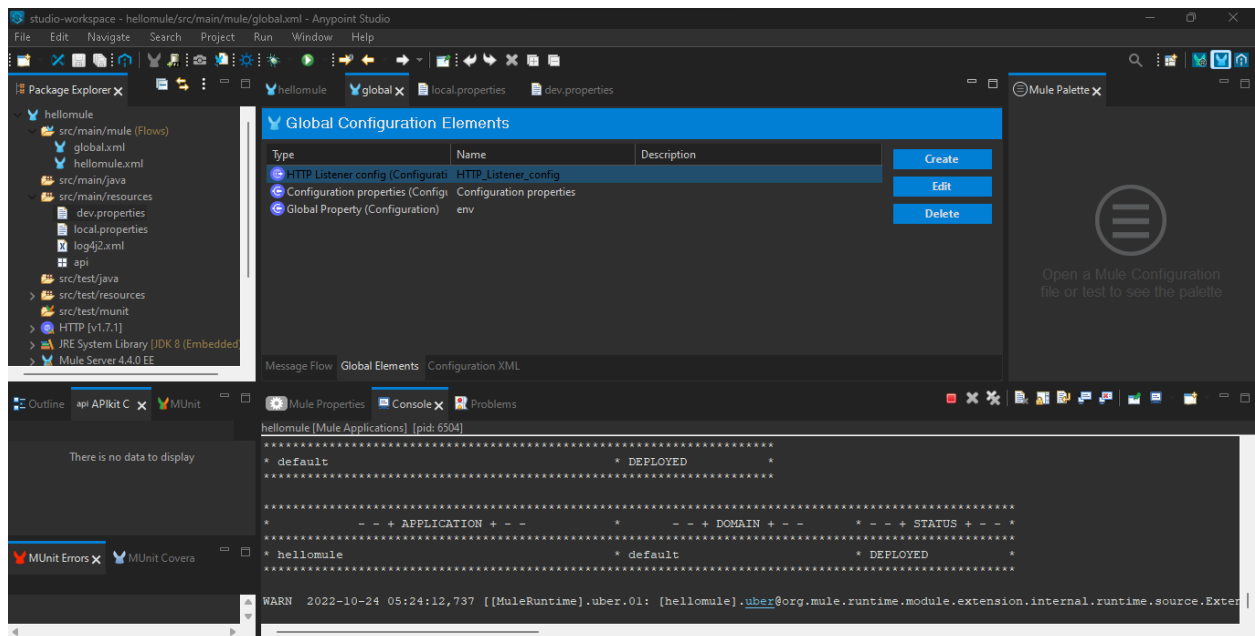


A screenshot of a code editor window with a dark theme. The top bar shows four tabs: 'hellomule', 'global', 'local.properties', and 'dev.properties'. The 'dev.properties' tab is active, displaying two lines of text: '1 http.listener.host=0.0.0.0' and '2 http.listener.port=8081'. The text is in a light green monospace font. A vertical scrollbar is visible on the right side of the editor.



A screenshot of a 'Global Configuration Elements' dialog box. It features a table with three columns: 'Type', 'Name', and 'Description'. To the right of the table are three buttons: 'Create', 'Edit', and 'Delete'. The 'Create' button is highlighted. At the bottom, there are three tabs: 'Message Flow', 'Global Elements', and 'Configuration XML', with 'Global Elements' being the active tab.

Type	Name	Description
HTTP Listener config (Configurati	HTTP_Listener_config	
Configuration properties (Config	Configuration properties	
Global Property (Configuration)	env	



How to secure properties before deployment in Anypoint Studio

In this part I learned that the java version is important, even I could generate my keys using Java 16 I could not deploy the app as the studio-workspace jdk was not matching with my java version. However everything was a success since I could secure my properties and deploy it on CloudHub and get a response on Postman.

```
C:\WINDOWS\system32\cmd.exe

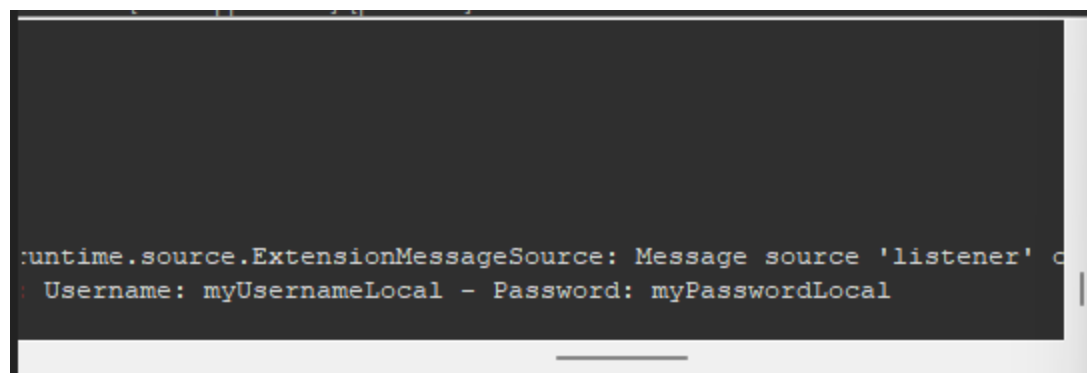
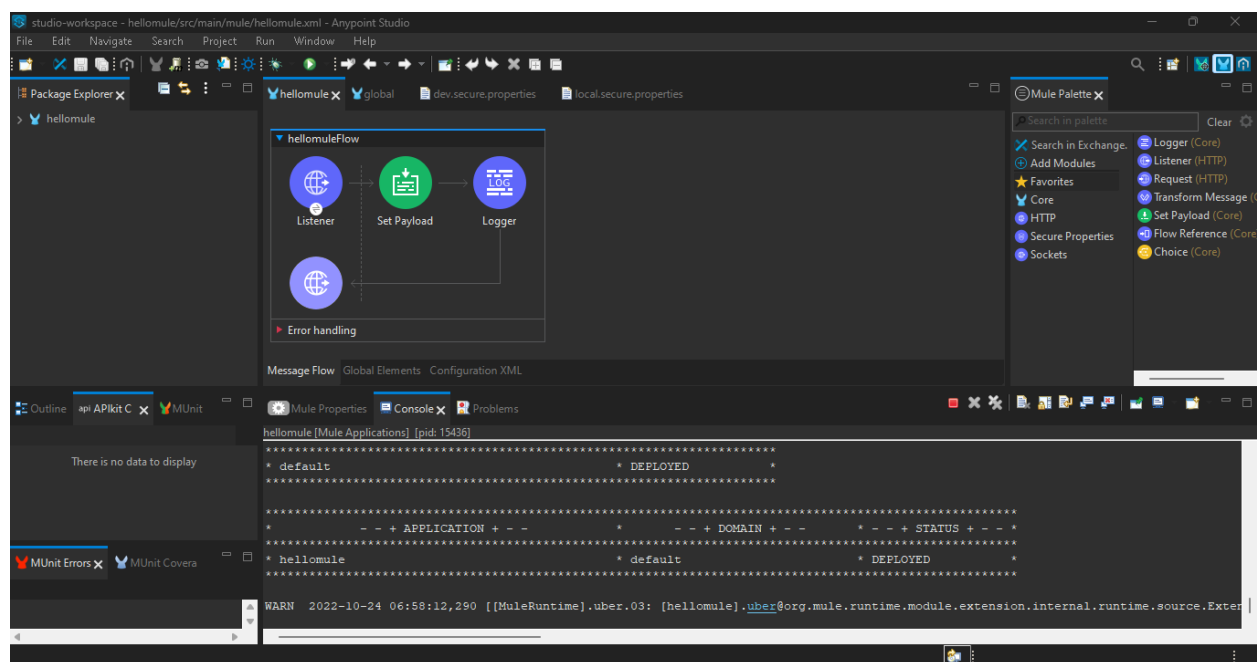
C:\Users\almej\OneDrive\Escritorio>java -cp secure-properties-tool.jar com.mulesoft.tools.SecurePropertiesTool string encrypt Blowfish CBC MyMuleSoftKey "myUsernameLocal"
HbsuWJRjiubchmzQREGdsA==

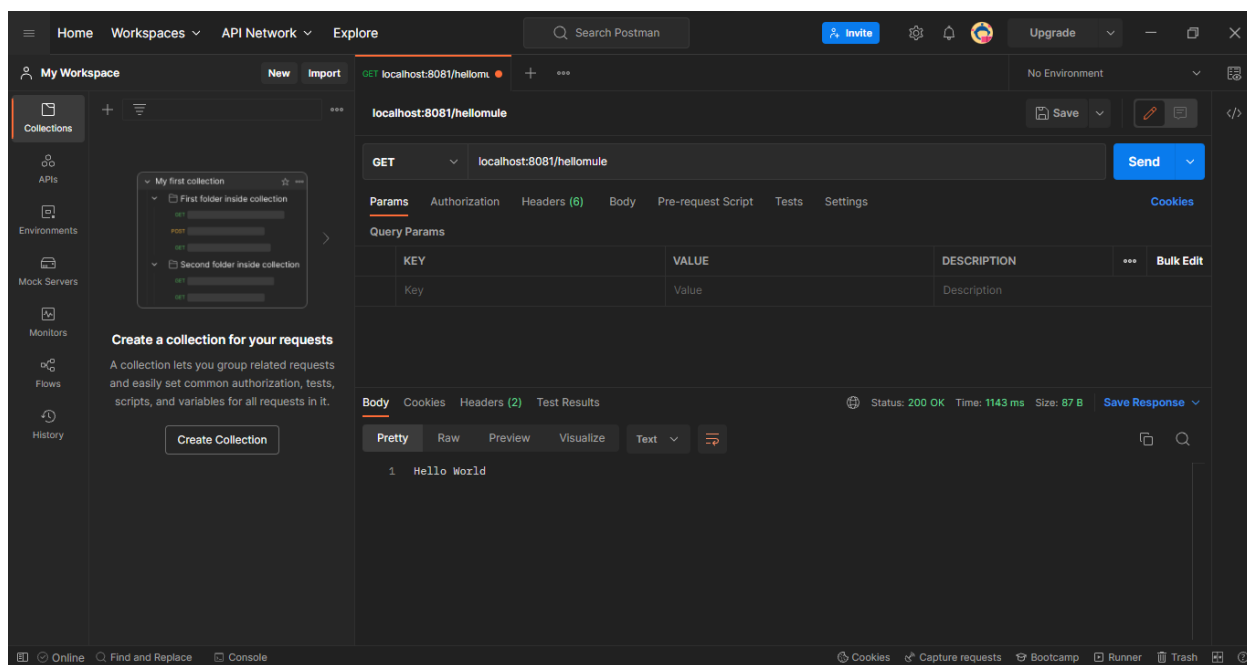
C:\Users\almej\OneDrive\Escritorio>java -cp secure-properties-tool.jar com.mulesoft.tools.SecurePropertiesTool string encrypt Blowfish CBC MyMuleSoftKey "myPasswordLocal"
zhoritn2db6Ud+9QuhyViQ==

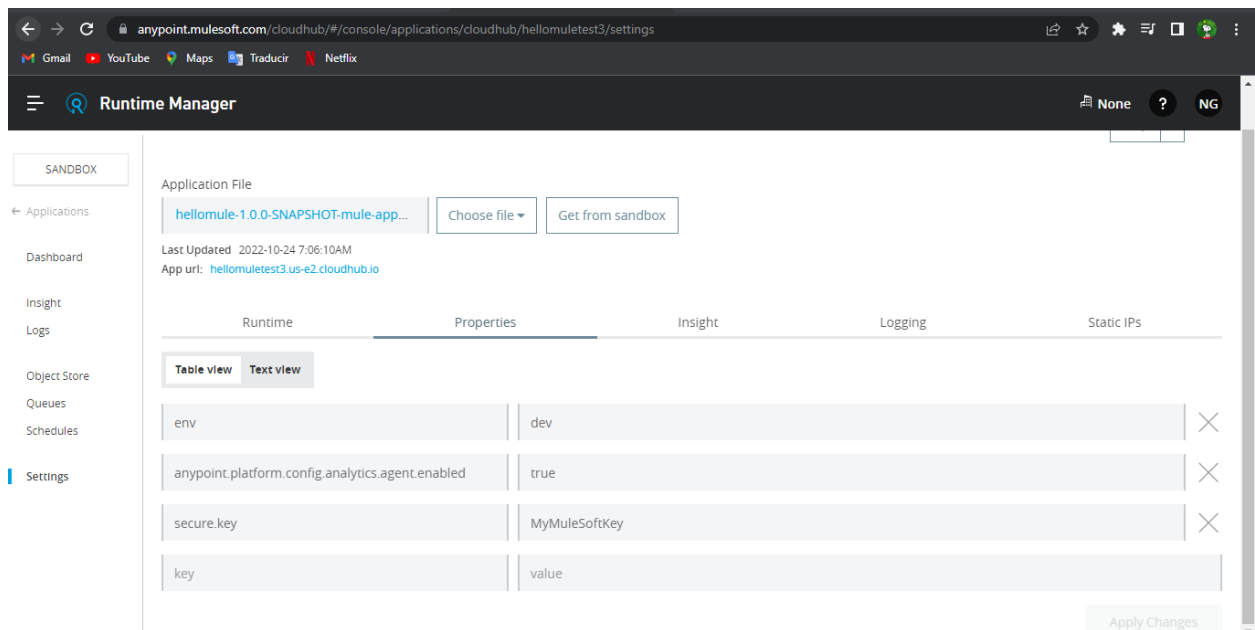
C:\Users\almej\OneDrive\Escritorio>java -cp secure-properties-tool.jar com.mulesoft.tools.SecurePropertiesTool string encrypt Blowfish CBC MyMuleSoftKey "myUsernameDev"
HbsuWJRjiuZZis+2oogkdQ==

C:\Users\almej\OneDrive\Escritorio>java -cp secure-properties-tool.jar com.mulesoft.tools.SecurePropertiesTool string encrypt Blowfish CBC MyMuleSoftKey "myPasswordDev"
zhoritn2db6oII22158LPQ==

C:\Users\almej\OneDrive\Escritorio>
```







anypoint.mulesoft.com/cloudhub/#/console/applications/cloudhub/hellomuletest3/settings

Runtime Manager

SANDBOX

← Applications

Dashboard

Insight

Logs

Object Store

Queues

Schedules

Settings

Application File

hellomule-1.0.0-SNAPSHOT-mule-app... Choose file Get from sandbox

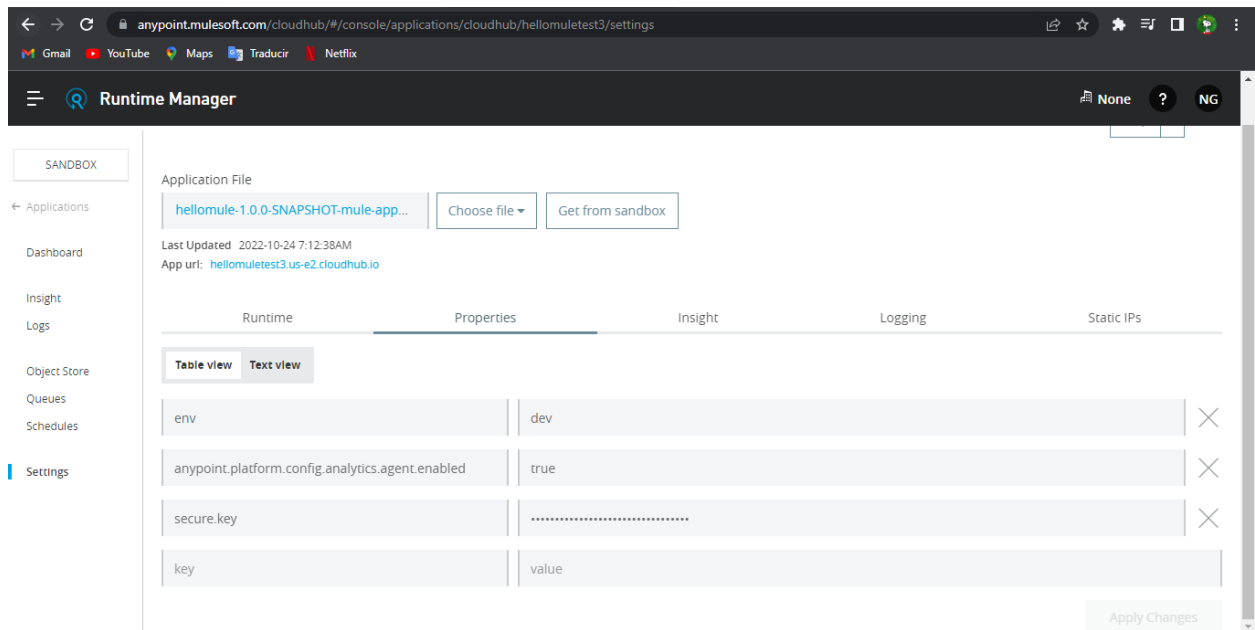
Last Updated 2022-10-24 7:06:10AM
App url: hellomuletest3.us-e2.cloudhub.io

Runtime Properties Insight Logging Static IPs

Table view Text view

env	dev	×
anypoint.platform.config.analytics.agent.enabled	true	×
secure.key	MyMuleSoftKey	×
key	value	

Apply Changes



anypoint.mulesoft.com/cloudhub/#/console/applications/cloudhub/hellomuletest3/settings

Runtime Manager

SANDBOX

← Applications

Dashboard

Insight

Logs

Object Store

Queues

Schedules

Settings

Application File

hellomule-1.0.0-SNAPSHOT-mule-app... Choose file Get from sandbox

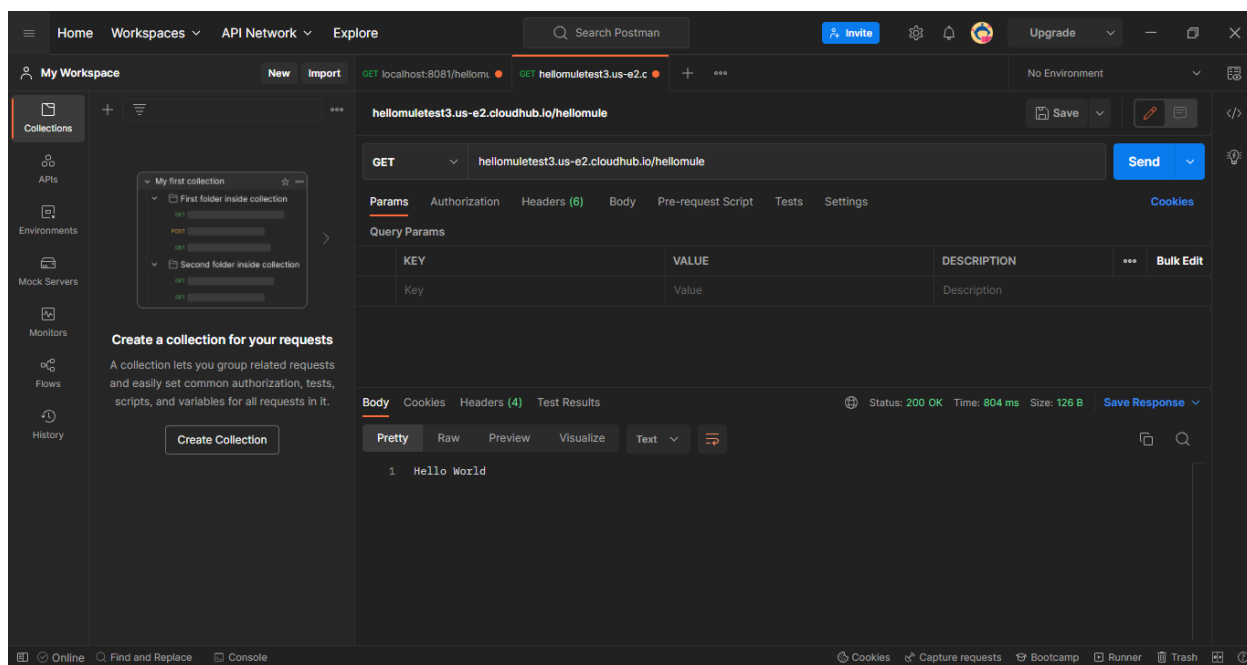
Last Updated 2022-10-24 7:12:38AM
App url: hellomuletest3.us-e2.cloudhub.io

Runtime Properties Insight Logging Static IPs

Table view Text view

env	dev	×
anypoint.platform.config.analytics.agent.enabled	true	×
secure.key	×
key	value	

Apply Changes



```
07:54:04.395    10/24/2022    Worker-0    [MuleRuntime].uber.01: [hellomuletest3].hellomuleFlow.CPU_LITE
@23d6632d    INFO
event:f068ea70-539a-11ed-89f4-0a54ed19850e Username: myUsernameDev - Password: myPasswordDev
```

How to set up API Autodiscovery in Anypoint Studio

The first screenshot shows the 'Add API' page in the 'Runtime' section. The 'Runtime' dropdown is selected, and the 'Mule Gateway' option is chosen under 'Select runtime'. The 'Proxy type' section shows 'Connect to existing application (basic endpoint)' selected, which is described as 'Connect your API to a Mule application using Autodiscovery.'

The second screenshot shows the 'API' configuration page. The 'Create new API' button is selected. A note states: 'Once the API is created it will be published in Exchange in stable state.' The 'Name' field is labeled 'Enter asset name' and the 'Asset types' dropdown is labeled 'Select a type'. A link 'Advanced >' is visible at the bottom right.

https://anypoint.mulesoft.com/apimanager/none-5662/#/login

anypoint.mulesoft.com/apimanager/none-5662/#/organizations/ffb9ad06-acdb-4621-88f3-5722c69bb563/environments/8f9bf72d-49cb-4a00-9eb3-0c54c4c...
API Manager

API Administration (Sandbox) | hellomuleapi (v1) - Settings

SANDBOX

API Status: Unregistered Asset Version: 1.0.0 Latest Type: HTTP
[Add consumer endpoint](#) View API in Exchange >
View configuration details >

API Instance ID: 18255808 Autodiscovery API ID: 18255808
Label: [Add a label](#)

Tags
[ADD A TAG](#)

To complete the registration process, you need to connect this API to your Mule application using Autodiscovery. [Learn more](#)

Key Metrics ^

Requests Top Apps Latency
☐ Include Policy Violations 1h 3h 1d 7d 1m 3m 1y Download CSV

Anypoint Platform

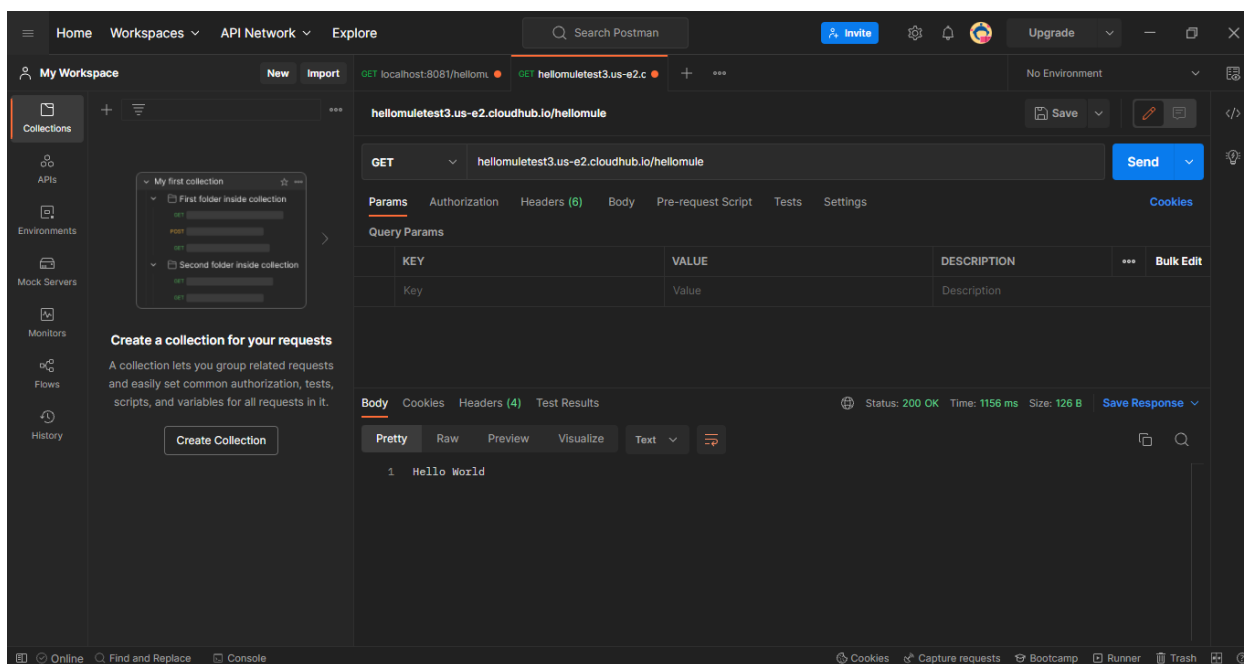
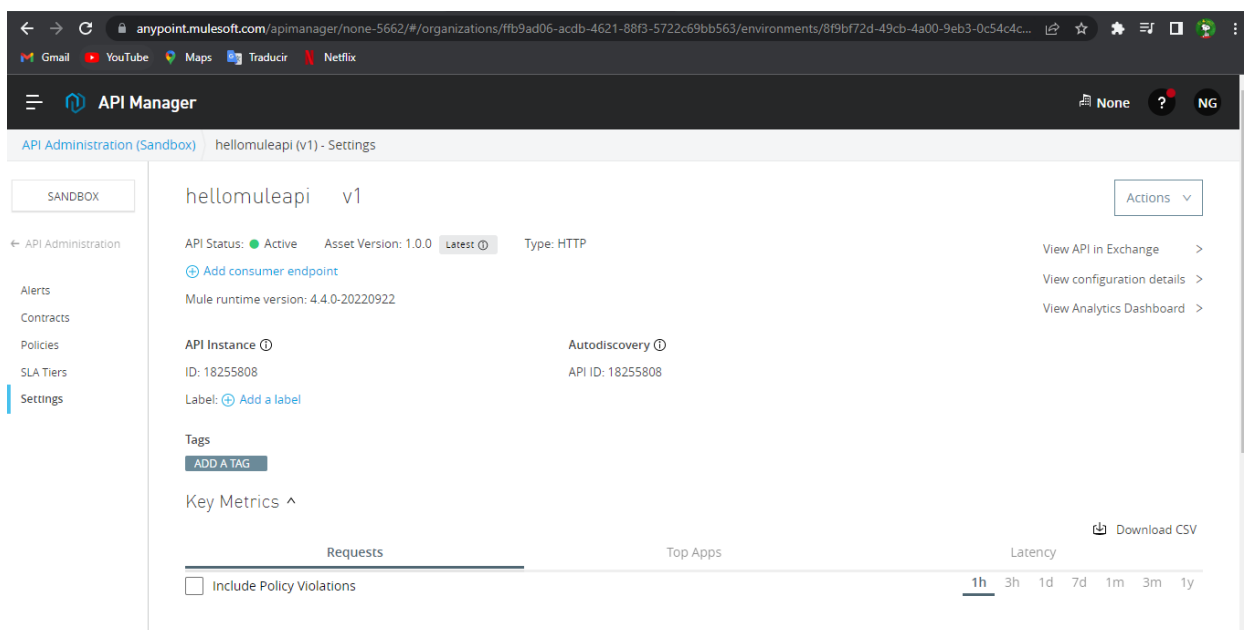
SANDBOX

Runtime Properties Insight Logging Static IPs

Table view Text view

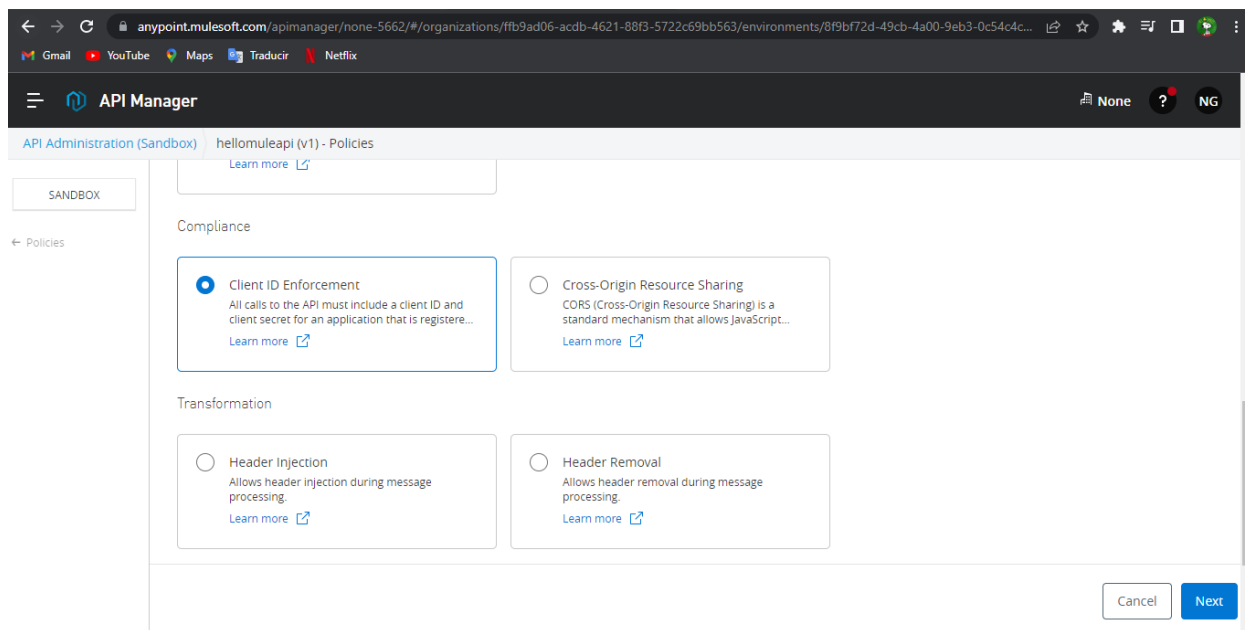
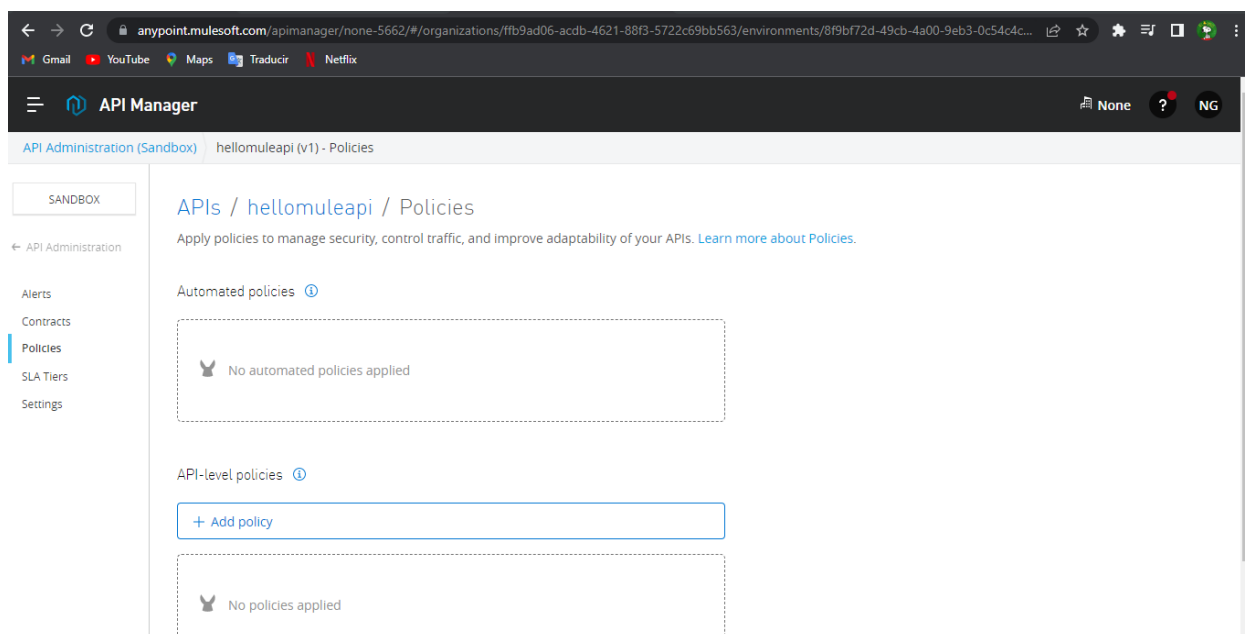
anypoint.platform.analytics_base_uri	https://analytics-ingest.anypoint.mulesoft.com/	×
anypoint.platform.client_id	c0b1e0a196a04aec93cd8b6e6a8b81c5	×
anypoint.platform.client_secret	D105638691D342798eDdF342726F26FD	×
anypoint.platform.base_uri	https://anypoint.mulesoft.com/	×
env	dev	×
anypoint.platform.config.analytics.agent.enabled	true	×
secure.key	×
key	value	

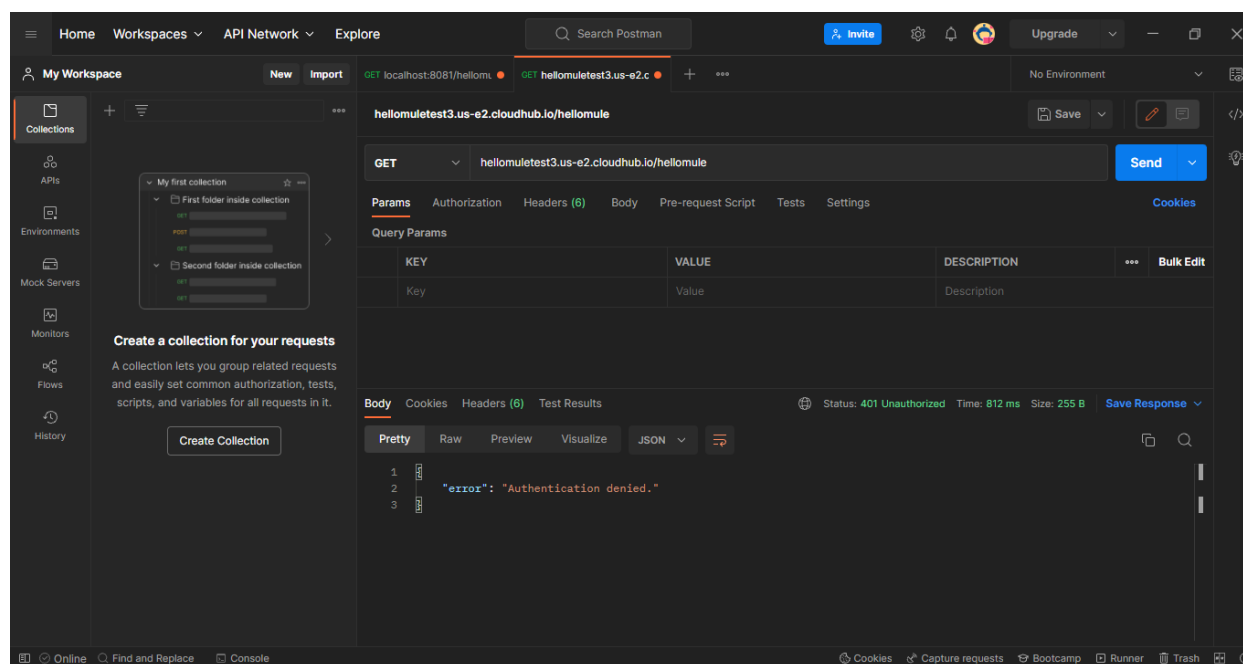
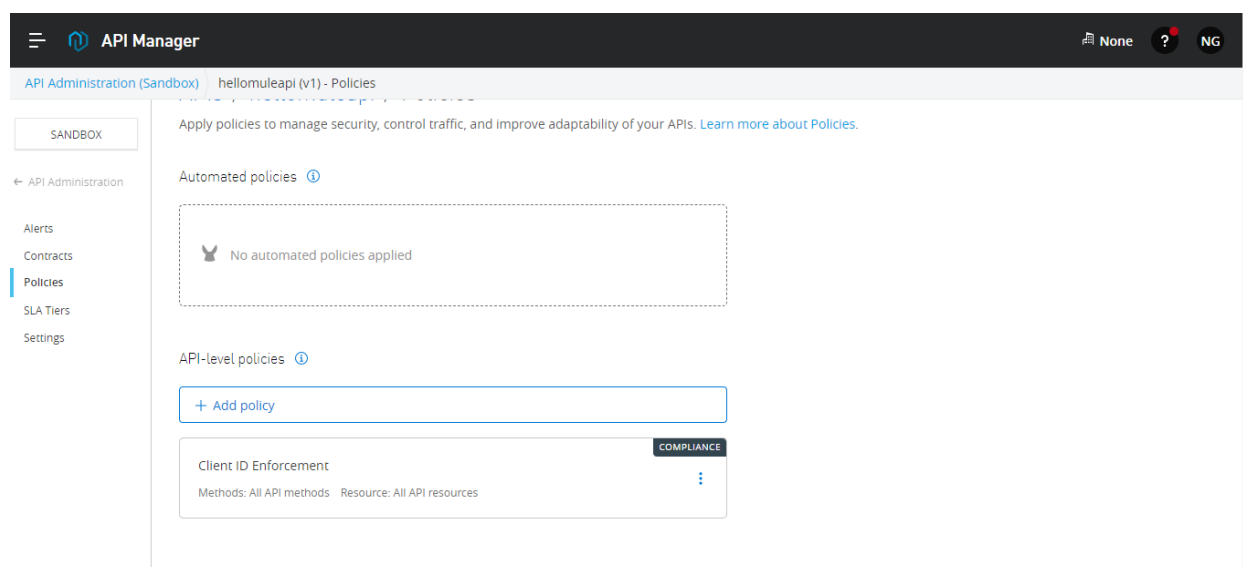
Cancel Deploy Application

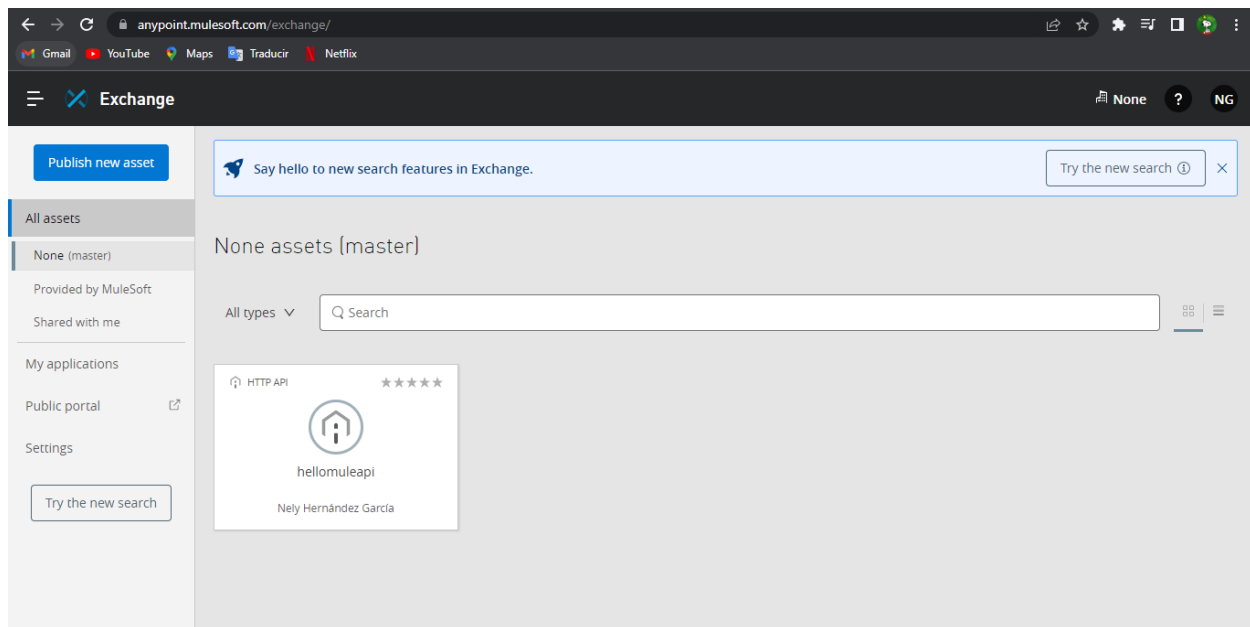


Even though the environment was a bit different from the one shown on the tutorials I managed to set my first API up and seeing it active on CloudHub.

API design best practices and applying client ID enforcement







Request access

API Instance

v1:18255808

Application

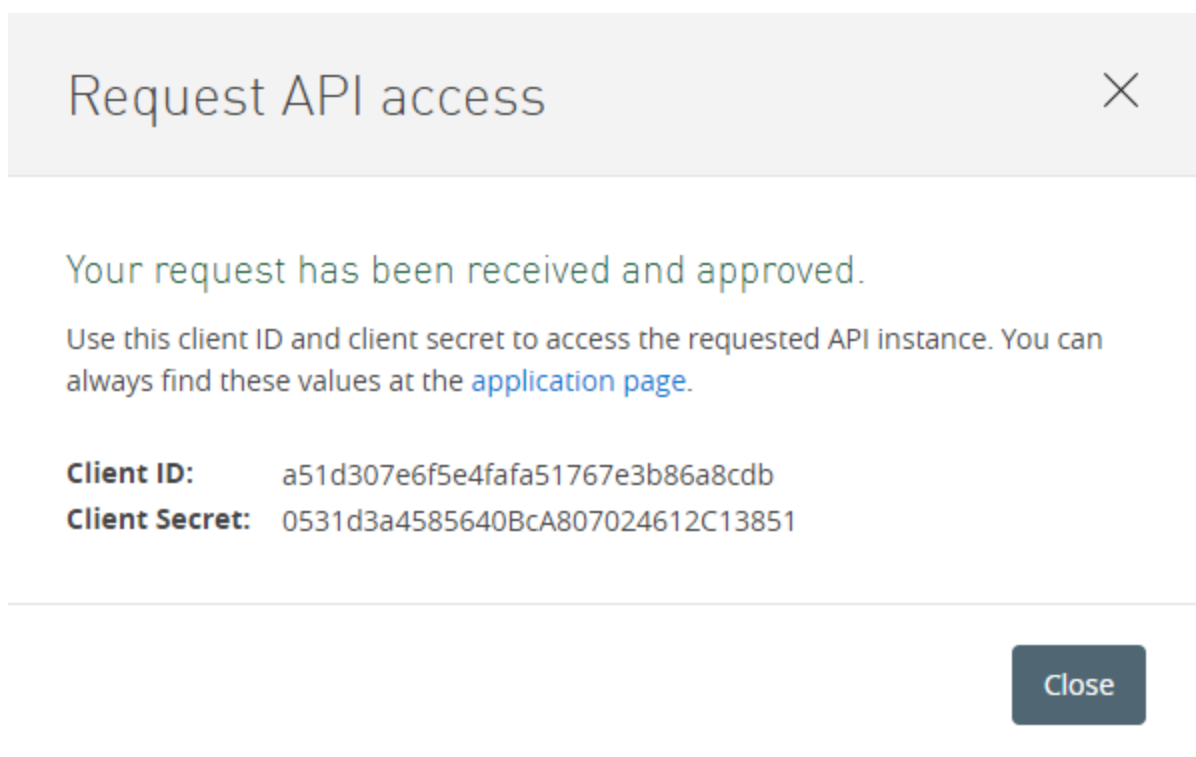
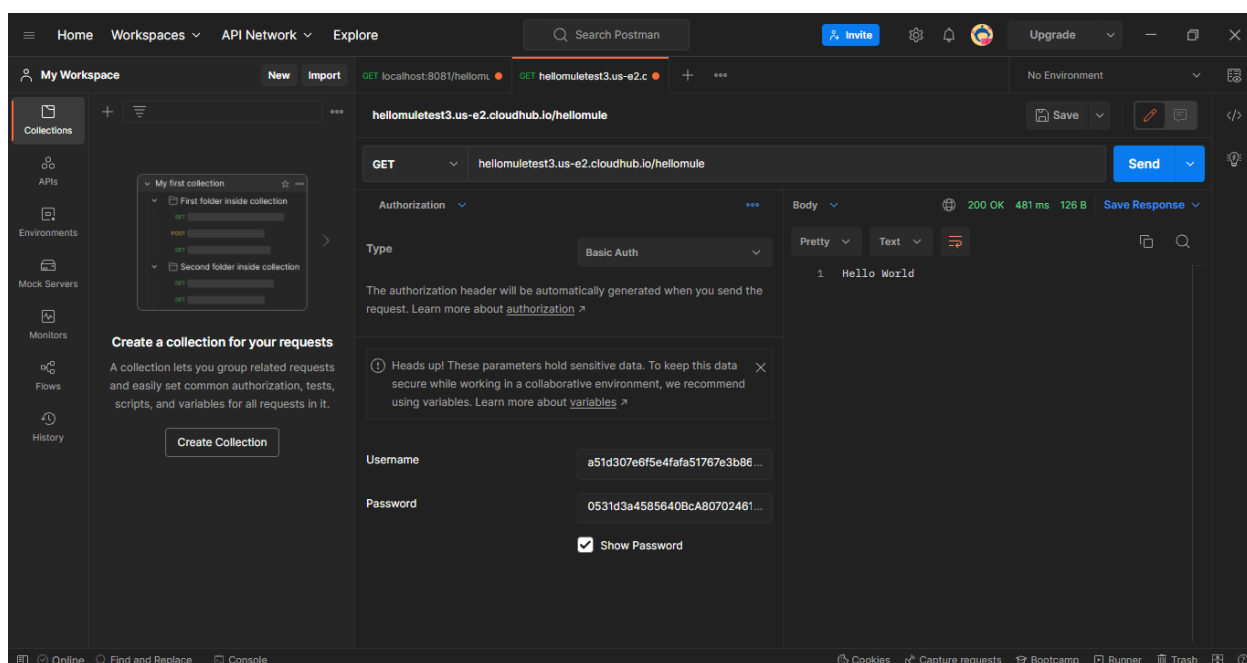
hellomuleapp

SLA tier
(Optional)

Instance does not have SLA tiers

Cancel

Request access



Best practices to design your first API Specification

During this practice I could use the best practices tips while naming the files and using the methods http and https.

Build your first API Specification with API Designer

The image displays two screenshots of the API Designer interface, illustrating the process of building an API specification.

Top Screenshot: The interface shows the "Design Center" for the "Hello Mule Database API". The left sidebar contains the "API Summary" and a list of resources. The main area displays the "Base URI" as "api.samplebaseuri.com" and the "Description" as "API Design sample". The right sidebar shows the "Edit RAML" tab with the following RAML specification:

```
#%RAML 1.0
title: Hello Mule Database API
baseUri: api.samplebaseuri.com
description: API Design sample
mediaType:
  - application/json
version: 1.0.0
protocols:
  - HTTP
  - HTTPS
```

Bottom Screenshot: The interface shows the "Resource path" as "/customers". The left sidebar lists the resources, including "/customers" and "/customers/{customerid}". The main area displays the "Responses" tab for the "/customers" resource, showing a "200 - OK" status. The right sidebar shows the "Try It" tab with a sample JSON response:

```
1 [
2   {
3     "firstName": "Example",
4     "lastName": "Example",
5     "phone": "Example",
6     "email": "Example",
7     "deliveryAddress": {
8       "street": "Example",
9       "city": "Example",
10      "postalCode": "Examp
11    },
12    "state": "Example",
13    "country": "Example"
14  },
15  "postalAddress": {
16    "street": "Example",
17    "city": "Example",
```

Publishing to Exchange

Asset version (required)

API version (required)

LifeCycle State



Stable

State of release, ready to consume

About asset versioning

To publish to Exchange, please, use [Semantic Versioning](#). Examples of good versions are 1.0.0 or 4.3.1.

More help

- [Changing a project's main/root file](#)
- [What is an API version?](#)

The lifecycle state of an asset shows its status in the software development lifecycle, from development to stable releases to deprecation.

Publishing to Exchange

✔ Published to Exchange.

Your API specification is now available to the target audience.

See the asset page in [Exchange](#).

Close

The image shows two screenshots of the Anypoint platform. The top screenshot is the 'Hello Mule Database API' page on Anypoint Exchange. It features a header with navigation links (Gmail, YouTube, Maps, Traducir, Netflix) and a user profile (None, NG). The main content area displays the API name, a REST API icon, and a 'None' status. It includes buttons for 'Share', 'Download', 'View code', and 'Add version'. A version management section shows '1.0.0 Private' and '1.0.x'. A sidebar on the left lists 'Assets list', 'PAGES', 'Home', 'SPECIFICATION', 'Summary', 'Endpoints', and '/customers'. The bottom screenshot is the 'Design Center' interface, showing the 'Hello Mule Database API - 1.0.0' specification. The left sidebar lists 'Files' with 'exchange.json' and 'hello-mule-database-api.raml'. The main area displays the RAML specification for the API, including types, address, city, postalCode, state, country, and contact details.

During this step I could have the opportunity to create my database and publish it.

How to configure an HTTPS endpoint in Anypoint Studio

Creating the jks key

```
C:\WINDOWS\system32\cmd.exe

C:\Users\almej\AnypointStudio\studio-workspace\hellomule\src\main\resources>keytool |
-genkey -keyalg RSA -alias mulekey -keystore mulekey.jks
Introduzca la contraseña del almacén de claves:
Volver a escribir la contraseña nueva:
¿Cuáles son su nombre y su apellido?
[Unknown]: nely
¿Cuál es el nombre de su unidad de organización?
[Unknown]: none
¿Cuál es el nombre de su organización?
[Unknown]: none
¿Cuál es el nombre de su ciudad o localidad?
[Unknown]: Pachuca
¿Cuál es el nombre de su estado o provincia?
[Unknown]: Hg
¿Cuál es el código de país de dos letras de la unidad?
[Unknown]: 52
¿Es correcto CN=nely, OU=none, O=none, L=Pachuca, ST=Hg, C=52?
[no]: yes
¿Cuáles son su nombre y su apellido?
[nely]: nely
¿Cuál es el nombre de su unidad de organización?
[none]: none
¿Cuál es el nombre de su organización?
[none]: none
¿Cuál es el nombre de su ciudad o localidad?
[Pachuca]: Pachuca
¿Cuál es el nombre de su estado o provincia?
[Hg]: Hg
¿Cuál es el código de país de dos letras de la unidad?
[52]: 52
¿Es correcto CN=nely, OU=none, O=none, L=Pachuca, ST=Hg, C=52?
[no]: si

Introduzca la contraseña de clave para <mulekey>
(INTRO si es la misma contraseña que la del almacén de claves):
Volver a escribir la contraseña nueva:

Warning:
El almacén de claves JKS utiliza un formato propietario. Se recomienda migrar a PKC
S12, que es un formato estándar del sector que utiliza "keytool -importkeystore -sr
ckeystore mulekey.jks -destkeystore mulekey.jks -deststoretype pkcs12".
```

GITHUB LINK:

<https://github.com/nelyher98/HelloMule.git>