Integrate your apps with JSON Server

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An end-to-end testing framework

Summary

Time and again we find ourselves in need of standing up a JSON server for sharing schemas with our clients while our development is in progress or for supporting our own end-to-end testing.

When you need a fast, easy to use JSON API solution, not many options are quick get running or as feature-rich as the json-server.

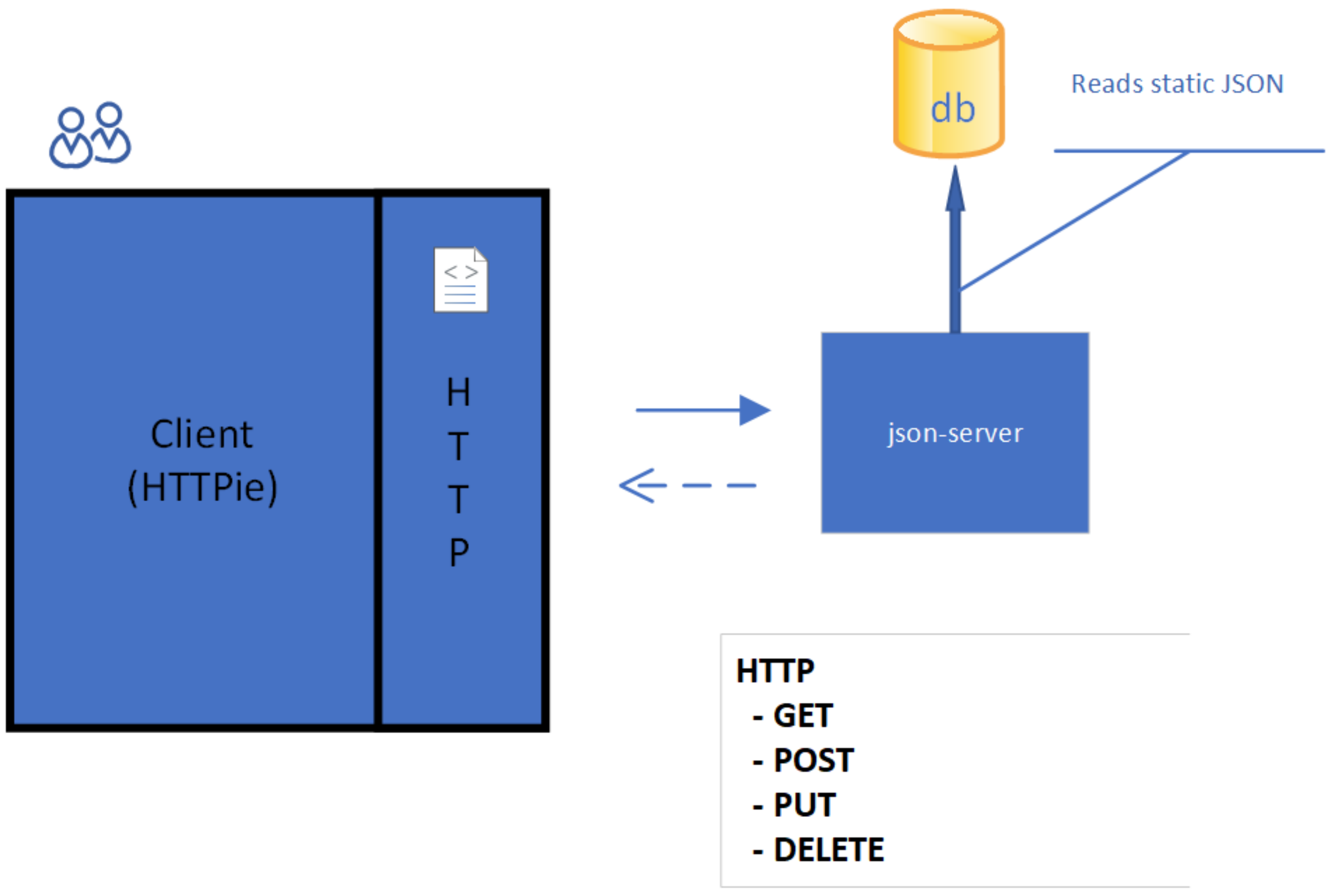
Architecture

The json-server implements the client/server Use Case, with the client application making HTTP requests to the server and the server providing determined canned responses or simulated errors.

When the server starts it will read a database of static JSON responses which we'll interact with later using the HTTPie JSON Client.

Another Use Case for json-server is when you're developing a new application which depends on API's which are rate limited. One example of this is the Open Wearther Map api. With the free tier you're limited to a fixed number of calls in a sliding time window. You can capture the JSON results, add them to json-server database and play them back by making unlimited, unbounded requests.

Client/Server interaction with the json-server



Installation

The json-server is a JavaScript application which I hope won't scare off too many Java or Mule developers, certainly it won't scare any polyglots! The installation really is quite simple.

The Node Package Manager (NPM)

NPM is the default package manager for the JavaScript runtime environment Node.js, it consists of a command line client that interacts with a remote registry. We'll use NPM to download and install **json-server**.

This is as simple installation if you don't already have NPM installed.

Download the latest version here

With NPM installed, you can perform a global install of json-server. The installation will add json-server to your path and allow you to run it from a shell window.

If this is the first time you're installing NPM you may need to open a new shell to add the new path.

Installing the JSON Server

```
npm install -g json-server

# verify the installation was successful
json-server -v
```

Configuring json-server

You will need to decide where you'll keep the JSON schema database, which keeps the schema that will be returned for client requests.

Sample db.json database

With json-server installed, create a folder where you plan to keep any sample data and project properties.

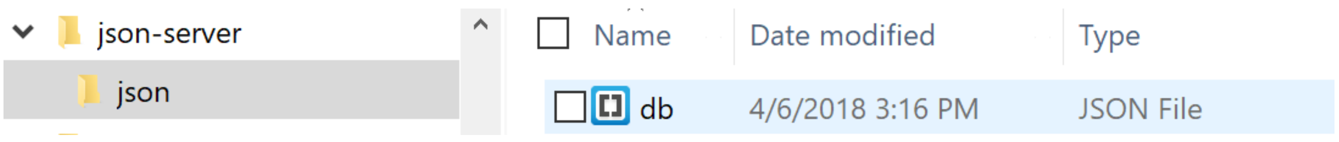
It's up to you where you would like to put it, I like keeping it on my Google Drive so I can reuse it on different machines, keeping it in Git is another good solution.

```
mkdir json-server
cd json-server
mkdir json
```

In the **json** folder create this sample **db.json** file.

When you've completed the hierarchy should look like this:

Folder hierarchy



Name	Date modified	Type
db	4/6/2018 3:16 PM	JSON File

db.json

```
{
  "wines": [
    { "id": 1, "product": "SOMMELIER SELECT",
      "desc": "Old vine Cabernet Sauvignon", "price": 159.99 },
    { "id": 2, "product": "MASTER VINTNER",
      "desc": "Pinot Noir captures luscious aromas", "price": 89.99 },
    { "id": 3, "product": "WINEMAKER'S RESERVE",
      "desc": "Merlot featuring complex flavors of cherry", "price": 84.99 },
    { "id": 4, "product": "ITALIAN SANGIOVESE",
      "desc": "Sangiovese grape is famous for its dry, bright cherry character",
"price": 147.99 }
  ],
  "comments": [
    { "id": 1, "body": "like the added grape skins", "postId": 1 },
    { "id": 1, "body": "the directions need to be clearer", "postId": 2 },
    { "id": 3, "body": "I received 3 different packages of wood chips", "postId": 1 }
  ],
  "profile": { "name": "vintnor" }
}
```

Running the json-server

With our sample data created lets start playing with the json-server.

Interactions with json-server

In this section we'll starting putting our json-server interactions into practical use.

For a refresher on the usage of **HTTP Verbs** see this DZone article.

From the json-server folder, run the following command:

Getting json-server command line help

```
json-server -h
```

As you can see there's lots of options for changing or overriding the defalut behaviors.

On a Unix system, change the Windows backslash "\" to a Unix forward slash "/".

When we start json-server, the default port it will listen on is 3000. If you prefer a different port you have two options, the first is to use the -p switch passing the new port number. You can also add a config file which you specify the location of using the -c switch. In the examples below we'll be using the defaults.

Example json-server config file: json-server.json

```
{
  "port": 9000
}
```

With the preliminaries out of the way, lets start json-server and prepare for sending some command line requests.

Starting the json-server

```
json-server --watch json/db.json
```

In this the first example we start the json-server asking it to watch the file **json\db.json** for changes.

Beneath the ascii art you should see the following

```
Loading json\db.json ①
Done

Resources ②
http://localhost:3000/wines
http://localhost:3000/comments
http://localhost:3000/profile

Home ③
http://localhost:3000
```

① Database file **json\db.json** loaded successfully

② URI's for JSON resources which were loaded

③ The URI for the default internal website (you can change this)

HTTPie Examples

To get started using HTTPie for the examples, you can download it using the link below.

Feel free to use Postman or curl from a Git bash terminal shell on Windows if you'de prefer. You should be able to adapt the HTTPie examples accordingly.

HTTPie is a curl like command line tool which can be used from Unix and Windows. I like it better than curl because it comes loaded with lots of syntactic sugar.

1. Basic HTTPie usage

```
http localhost:3000/wines/1
or
http http://localhost:3000/wines/1
```

Note that when HTTPie installs it will be called **http**, when you invoke it the command line, you can use or leave off the **http:**// part of the URI, it's your choice.

Default WebSite

Lets get started by hitting the default website from your browser.

Use browser to access website

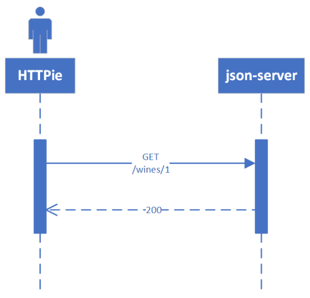
```
http://localhost:3000
```

Under **Resources** you notice that *vintner* has been misspelled as *vintnor*. You fix the typo using your favorite editor and save the file. Refreshing the link you notice that the change has already been picked up by json-server.

Providing the ***--watch** option told the json-server to run in development mode, watching and reloading changes.

GET Request

HTTP GET Requests



Use HTTPie, curl or postman

```
http localhost:3000/wines/1
```

GET Requests

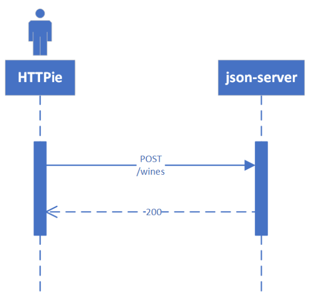
Request	**URI**	**Result**
GET	http localhost:3000/wines	All wine entries
GET	http localhost:3000/wines/1	Wine with ID=1
GET	http localhost:3000/wines?price_gte=100	wines with price >= 100
GET	http localhost:3000/wines?id_ne=2	filter id=2

For more examples see the json-server website

POST Request

With POST we will add a new record to the database.

HTTP POST Requests



Use HTTPie, curl or postman

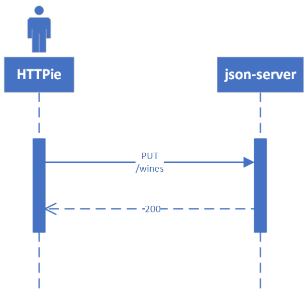
```
http POST localhost:3000/wines id=5 product="TWO BUCK CHUCK" price=2.99 desc="Squeezed
rapidly from a delicate, yet unpretentious grape"
```

Request	URI	Result
POST	http localhost:3000/wines	All wine entries
GET	http localhost:3000/wines	All wine entries
GET	http localhost:3000/wines?desc_like=grape	All wines with *grape* in desc

PUT Request

In our PUT example we'll make a change to **product** to the record we just added with POST.

HTTP PUT Requests



Use HTTPie, curl or postman

```
http PUT localhost:3000/wines/5 product="TWO-ISH BUCK CHUCK" price=2.99 desc="Squeezed
rapidly from a delicate, yet pretentious grape"
```

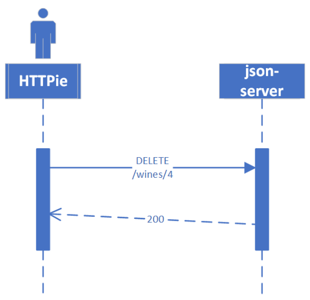
Request	URI	Result
PUT	http localhost:3000/wines	All wine entries
GET	http localhost:3000/wines	All wine entries

If you don't enter all the fields, PUT will replace with just what you provide.

DELETE Request

To complete our example CRUD operations we'll delete the record with ID=5

HTTP DELETE Requests



Use HTTPie, curl or postman

```
http DELETE localhost:3000/wines/5
```

Request	URI	Result
DELETE	http localhost:3000/wines/5	Deletes wine with ID=5
GET	http localhost:3000/wines	All wine entries

I hope you enjoyed reading this article as much as I have writing it, i'm looking forward to your feedback.

About the Author:

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