



ScanAPI

Automatização de Testes de Integração para a sua API

Camila Maia

TDC São Paulo
Agosto de 2020



Motivação

Tudo começou numa bela semana de firefighter... 🔥





Eu trabalho na...

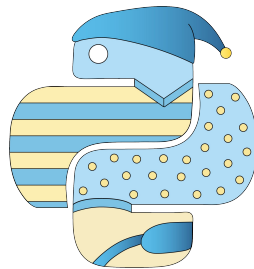
 **loadsmart**





Quem sou eu?

- Desenvolvedora Backend
- Formada em Sistemas de Informação na UFSC
- Entrei na área em 2010
- Maior experiência com Python e Ruby
- Organização de eventos: PyJamas e EuroPython





Motivação

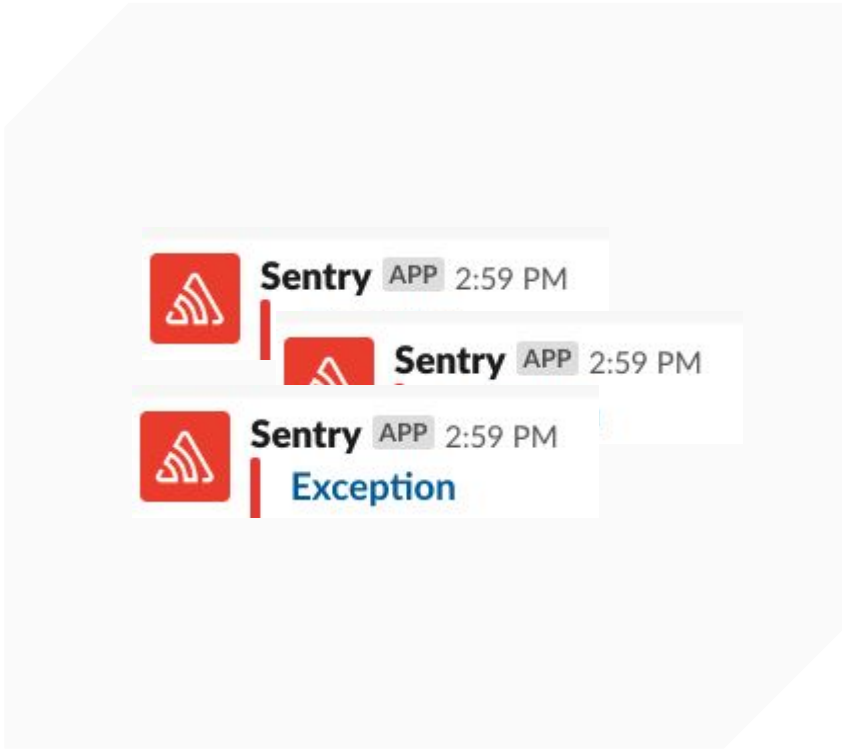
Tudo começou numa bela semana de firefighter... 🔥





Motivação

Erros de integração 🌟



- **Cliente** mandando campos diferentes do esperado
- **Frontend** recebendo campos diferentes do esperado



Motivação

Documentação desatualizada 📄

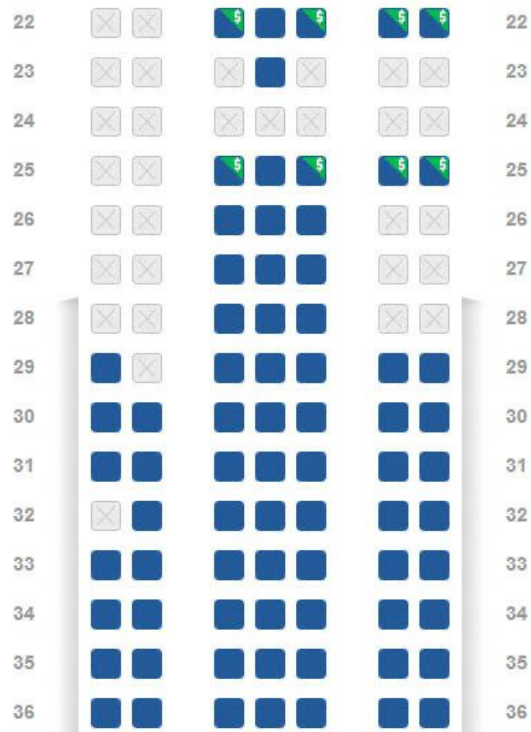
- Endpoints e campos faltantes
- Desinformação

The screenshot shows the Swagger UI interface for a petstore API. At the top, there is a green header with the Swagger logo, a text input field containing the URL 'http://localhost:8080/dist/swagger.yaml', another text input field for 'api_key', and an 'Explore' button. Below the header, the title 'Swagger Petstore (Simple)' is displayed, followed by a description: 'A sample API that uses a petstore as an example to demonstrate features in the swagger-2.0 specification'. It also mentions 'Created by Swagger API team' and provides links to 'http://swagger.io', 'Contact the developer', and 'MIT'. A 'default' section is visible with options for 'Show/Hide', 'List Operations', and 'Expand Operations'. The operations list includes: a blue 'GET' button for '/pets', a green 'POST' button for '/pets', a red 'DELETE' button for '/pets/{id}', and a blue 'GET' button for '/pets/{id}'. Below the operations, there is an 'Implementation Notes' section stating 'Returns a user based on a single ID, if the user does not have access to the pet'. A 'Response Class (Status 200)' section shows 'pet response'. At the bottom, there is a 'Model' section with an 'Example Value' tab, displaying a JSON object: { "id": 0, "name": "string", ... }



Motivação

Dificuldade em recriar o cenário 🤔



`/reservar/:id_do_assento`

`id_do_voo?`

`id_da_aeronave?`

`id_do_passageiro?`

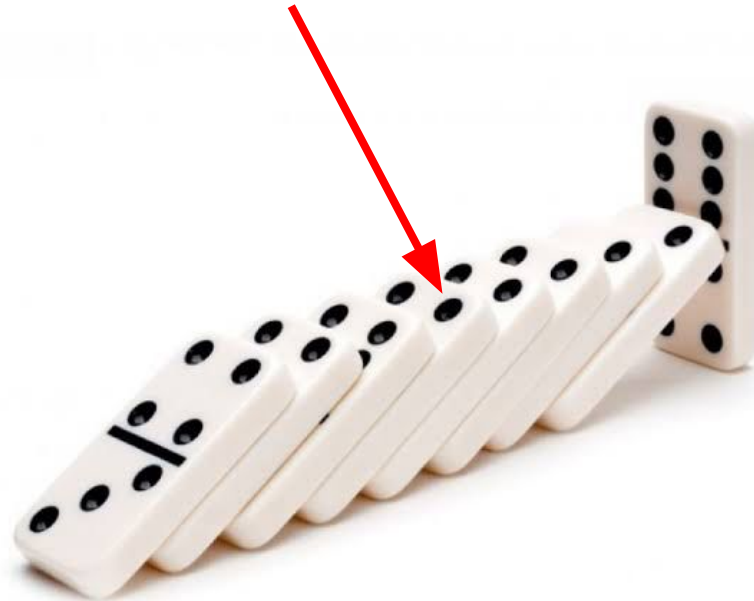
Aeronave está disponível?

????



Motivação

Dificuldade em recriar o cenário 🤔





ScanAPI



O quê a ScanAPI se propõe a fazer pela sua API?

- Framework de código aberto
 - Command line interface (CLI)
 - Escrito em Python
1. Fornecer uma **documentação “Ao Vivo”**
 2. Possibilitar a implementação de **testes de Integração**



Como funciona?

Exemplo: PokéAPI

PokéAPI: <https://pokeapi.co>

\$ http <https://pokeapi.co/api/v2/pokemon/>



```
Camila (zsh) ~ 961  
➤ http https://pokeapi.co/api/v2/pokemon/  
HTTP/1.1 200 OK  
Accept-Ranges: bytes  
Access-Control-Allow-Origin: *  
Age: 46959  
CF-Cache-Status: HIT  
CF-RAY: 5c8d58facc0cf720-GRU  
Cache-Control: public, max-age=86400, s-maxage=86400  
Connection: keep-alive  
Content-Encoding: gzip  
Content-Length: 308  
Content-Type: application/json; charset=utf-8  
Date: Wed, 26 Aug 2020 11:52:36 GMT  
Etag: W/"589-5fcoy7He43Fy2chuTjxGukLgU7A"  
Expect-CT: max-age=604800, report-uri="https://report-uri.cloudflare.com/cdn-cgi/beacon/expect-ct"  
Function-Execution-Id: c25k225shshv  
Server: cloudflare  
Set-Cookie: __cfduid=d0f0d7c5d45602678082955065fe742641598442756; expires=Fri, 25-Sep-20 11:52:36 GM  
  
Camila (zsh) 961
```



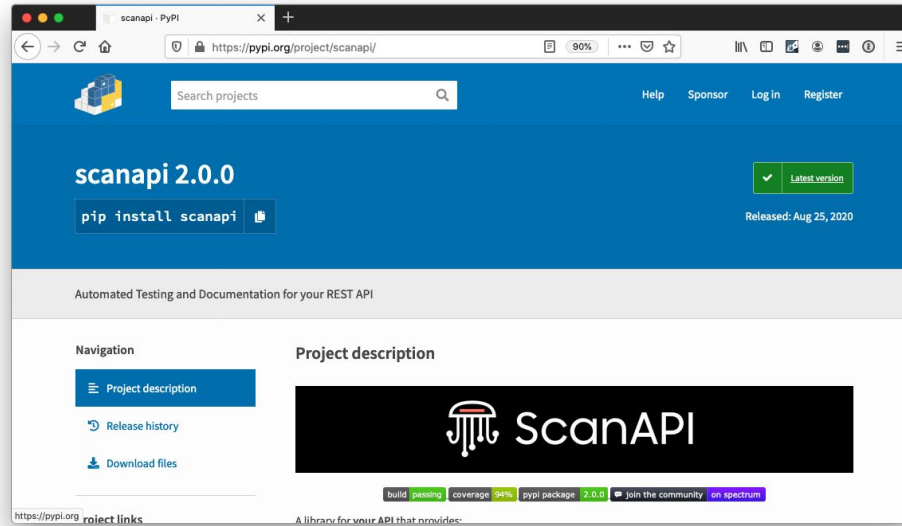
```
Camila (zsh) 961
{
  "count": 1048,
  "next": "https://pokeapi.co/api/v2/pokemon/?offset=20&limit=20",
  "previous": null,
  "results": [
    {
      "name": "bulbasaur",
      "url": "https://pokeapi.co/api/v2/pokemon/1/"
    },
    {
      "name": "ivysaur",
      "url": "https://pokeapi.co/api/v2/pokemon/2/"
    },
    {
      "name": "venusaur",
      "url": "https://pokeapi.co/api/v2/pokemon/3/"
    }
  ]
}
Camila (zsh) 961
```



Como funciona?

Exemplo: PokéAPI

1. Instalar: [pip](#)
2. Instalar: **\$ pip install scanapi**





Como funciona?

Exemplo: PokéAPI

```
# scanapi.yaml
```

```
endpoints:
```

```
- name: pokeapi
```

```
  path: https://pokeapi.co/api/v2/
```

```
  endpoints:
```

```
    - name: pokemon
```

```
      path: pokemon → https://pokeapi.co/api/v2/pokemon
```

```
      requests:
```

```
        - name: list_all
```

```
          method: get
```

```
          path: / → https://pokeapi.co/api/v2/pokemon/
```




Como funciona?

Exemplo: PokéAPI

Rodar a ScanAPI: **\$ scanapi run scanapi.yaml**

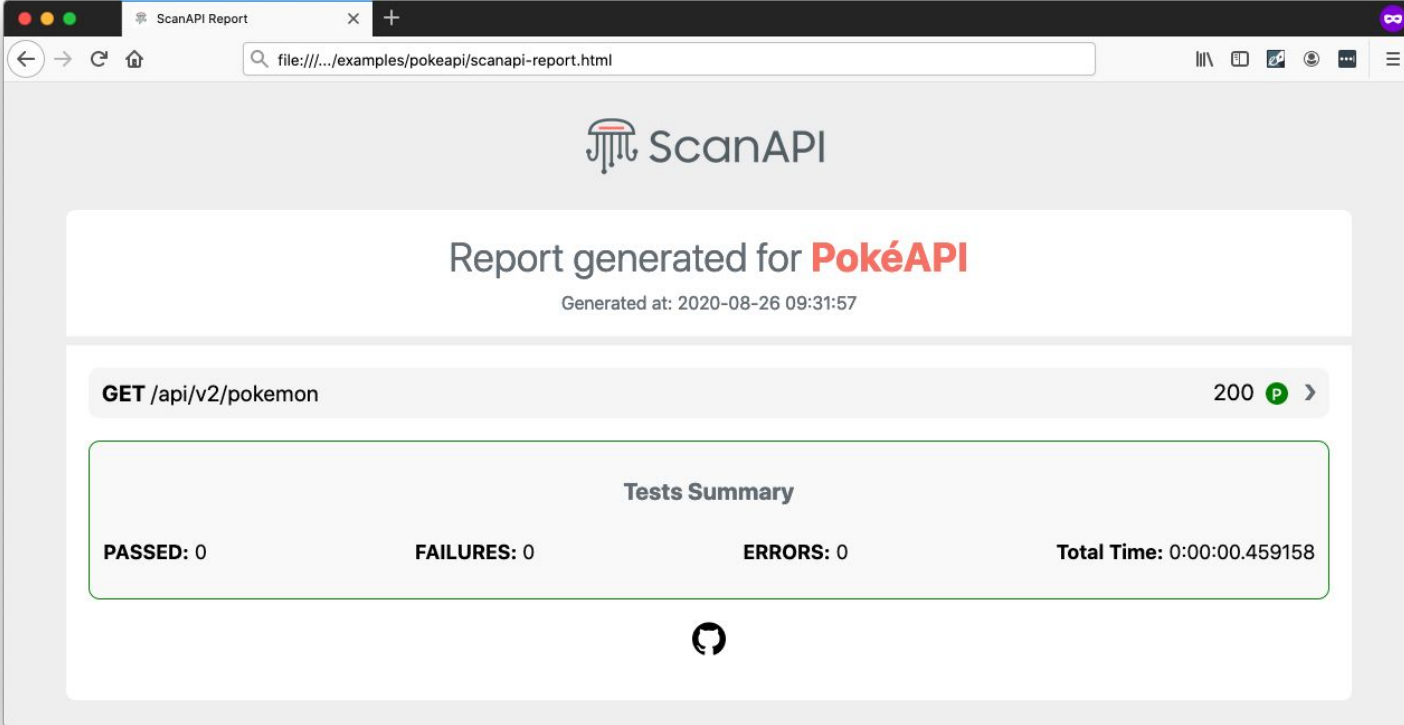
```
(venv)
scanapi-org/examples/pokeapi master x 1d
└─ scanapi run scanapi.yaml
Loading file ./scanapi.conf
Loading file scanapi.yaml
Writing documentation
Making request GET https://pokeapi.co/api/v2/pokemon

The documentation was generated successfully.
It is available at scanapi-report.html
(venv)
scanapi-org/examples/pokeapi master x 1d
└─
```



Como funciona?

Documentação 



ScanAPI Report

file:///.../examples/pokeapi/scanapi-report.html

ScanAPI


Report generated for **PokéAPI**

Generated at: 2020-08-26 09:31:57

GET /api/v2/pokemon 200 **P**

Tests Summary

PASSED: 0 FAILURES: 0 ERRORS: 0 Total Time: 0:00:00.459158





ScanAPI Report

file:///.../examples/pokeapi/scanapi-report.html

GET /api/v2/pokemon 200 P

REQUEST

Full URL: <https://pokeapi.co/api/v2/pokemon>

Header	Value
User-Agent	python-requests/2.24.0
Accept-Encoding	gzip, deflate
Accept	*/*
Connection	keep-alive
Content-Length	2
Content-Type	application/json

▼ **cURL**

```
curl -X GET -H 'Accept: */*' -H 'Accept-Encoding: gzip, deflate' -H 'Connection: keep-alive' -H 'Content-Length: 2' -H 'Content-Type: application/json' -H 'User-Agent: python-requests/2.24.0' -d '{}' https://pokeapi.co/api/v2/pokemon
```



ScanAPI Report

file:///.../examples/pokeapi/scanapi-report.html

RESPONSE

status code	200
response time	0.132748 s
redirect	False


► Headers

► Content

TESTS

Tests Summary

PASSED: 0	FAILURES: 0	ERRORS: 0	Total Time: 0:00:00.459158
------------------	--------------------	------------------	-----------------------------------





ScanAPI Report

file:///.../examples/pokeapi/scanapi-report.html

RESPONSE

status code	200
response time	0.132748 s
redirect	False

► Headers

▼ Content

```
{  
  "count": 1048,  
  "next": "https://pokeapi.co/api/v2/pokemon?offset=20&limit=20",  
  "previous": null,  
  "results": ⊕[20 items]  
}
```

TESTS

Tests Summary



Até aqui...

Não precisamos de nenhum conhecimento de Python





Biblioteca requests

Um pouco de Python 🐍

Python Requests: <https://requests.readthedocs.io>

```
Camila (python3.7) 11/11/2023 10:11:11 AM
>>> import requests
>>> response = requests.get("https://pokeapi.co/api/v2/pokemon/")
>>> response.status_code
200
>>> response.elapsed.total_seconds()
0.121929
>>> response.url
'https://pokeapi.co/api/v2/pokemon/'
>>> 
```

Camila (python3.7) 11/11/2023 10:11:11 AM



Biblioteca requests

Um pouco de Python 🐍

Python Requests: <https://requests.readthedocs.io>

```
Camila (python3.7) ㉿#1
>>> response.json()
{'count': 1048, 'next': 'https://pokeapi.co/api/v2/pokemon/?offset=20&limit=20', 'previous': None, 'results': [{'name': 'bulbasaur', 'url': 'https://pokeapi.co/api/v2/pokemon/1/'}, {'name': 'ivysaur', 'url': 'https://pokeapi.co/api/v2/pokemon/2/'}, {'name': 'venusaur', 'url': 'https://pokeapi.co/api/v2/pokemon/3/'}, {'name': 'charmander', 'url': 'https://pokeapi.co/api/v2/pokemon/4/'}, {'name': 'charmeleon', 'url': 'https://pokeapi.co/api/v2/pokemon/5/'}, {'name': 'charizard', 'url': 'https://pokeapi.co/api/v2/pokemon/6/'}, {'name': 'squirtle', 'url': 'https://pokeapi.co/api/v2/pokemon/7/'}, {'name': 'wartortle', 'url': 'https://pokeapi.co/api/v2/pokemon/8/'}, {'name': 'blastoise', 'url': 'https://pokeapi.co/api/v2/pokemon/9/'}, {'name': 'caterpie', 'url': 'https://pokeapi.co/api/v2/pokemon/10/'}, {'name': 'metapod', 'url': 'https://pokeapi.co/api/v2/pokemon/11/'}, {'name': 'butterfree', 'url': 'https://pokeapi.co/api/v2/pokemon/12/'}, {'name': 'weedle', 'url': 'https://pokeapi.co/api/v2/pokemon/13/'}, {'name': 'kakuna', 'url': 'https://pokeapi.co/api/v2/pokemon/14/'}, {'name': 'beedrill', 'url': 'https://pokeapi.co/api/v2/pokemon/15/'}, {'name': 'pidgey', 'url': 'https://pokeapi.co/api/v2/pokemon/16/'}, {'name': 'pidgeotto', 'url': 'https://pokeapi.co/api/v2/pokemon/17/'}, {'name': 'pidgeot', 'url': 'https://pokeapi.co/api/v2/pokemon/18/'}, {'name': 'rattata', 'url': 'https://pokeapi.co/api/v2/pokemon/19/'}, {'name': 'raticate', 'url': 'https://pokeapi.co/api/v2/pokemon/20/'}]}
>>> response.json()["count"]
1048
>>> response.json()["results"][0]["name"]
'bulbasaur'
>>> len(response.json()["results"])
20
Camila (python3.7) ㉿#1
```




Como funciona?

Testes de Integração ✓

...

requests:

- name: list_all

method: get

path: /

tests:

- name: status_code_is_200

assert: \${{ response.status_code == 200 }}

- name: response_time_is_under_half_second

assert: \${{ response.elapsed.total_seconds() < 0.5 }}

- name: results_length_is_20

assert: \${{ len(response.json()["results"]) == 20 }}

- name: count_is_equals_to_1048

assert: \${{ response.json()["count"] == 1048 }}

```
{
  "count": 1048,
  "next": "https://pokeapi.co/api/v2/pokemon/?offset=20&limit=20",
  "previous": null,
  "results": [
    {
      "name": "bulbasaur",
      "url": "https://pokeapi.co/api/v2/pokemon/1/"
    },
    {
      "name": "ivysaur",
      "url": "https://pokeapi.co/api/v2/pokemon/2/"
    }
  ]
}
```



ScanAPI Report

file:///.../examples/pokeapi/scanapi-report.html

► Headers

► Content

TESTS

[PASSED] pokeapi::pokemon::list_all::status_code_is_200


[PASSED] pokeapi::pokemon::list_all::response_time_is_under_half_second

[PASSED] pokeapi::pokemon::list_all::results_length_is_20

[PASSED] pokeapi::pokemon::list_all::count_is_equals_to_1048

Tests Summary

PASSED: 4	FAILURES: 0	ERRORS: 0	Total Time: 0:00:00.903044
------------------	--------------------	------------------	-----------------------------------





Como funciona?

Encadeamento ☘

- Pegar detalhes de um Pokémon
- Neste caso o dado é “estático”, mas poderia não ser
- <https://pokeapi.co/api/v2/pokemon/bulbasaur>



Como funciona?

Encadeamento

requests:

- name: `pokemon`

path: `pokemon`

requests:

- name: `list_all`

method: `get`

path: `/`

vars:

`pokemon_name: ${ response.json() ["results"] [0] ["name"] }`

tests: `...`

- name: `details`

method: `get`

path: `${pokemon_name}`




`pokemon/${pokemon_name}`

```
{
  "count": 1048,
  "next": "https://pokeapi.co/api/v2/pokemon/?offset=20&limit=20",
  "previous": null,
  "results": [
    {
      "name": "bulbasaur",
      "url": "https://pokeapi.co/api/v2/pokemon/1/"
    },
    {
      "name": "ivysaur",
      "url": "https://pokeapi.co/api/v2/pokemon/2/"
    }
  ]
}
```



ScanAPI Report

file:///.../examples/pokeapi/scanapi-report.html




Report generated for **PokéAPI**

Generated at: 2020-08-26 10:16:19

GET /api/v2/pokemon	200 P >
GET /api/v2/pokemon/bulbasaur	200 P >

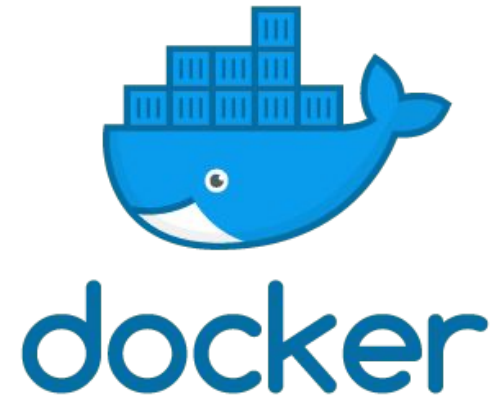
Tests Summary

PASSED: 4	FAILURES: 0	ERRORS: 0	Total Time: 0:00:00.745652
------------------	--------------------	------------------	-----------------------------------





Adicionando ScanAPI ao seu projeto





Adicionando ScanAPI ao seu projeto

██████████ > master > main > scanapi (995)

scanapi **SUCCESS**

Duration / Finished

🕒 15s / 20d ago

Queued

⌚ 0s

Executor

🐳 Docker Medium ⓘ

Commit

🔑 ██████████

Branch

🔗 master

Author

👤 Camila Maia

STEPS TESTS **ARTIFACTS**

▾ 📦 Parallel Run 0

[scanapi/report.html](#)



Adicionando ScanAPI ao seu projeto

```
Camila (zsh) ⌘2
~/workspace/my-project
. ls -la
total 0
drwxr-xr-x  4 camilamaia  staff   128 Aug 26 10:25 .
drwxr-xr-x 49 camilamaia  staff  1568 Aug 26 10:19 ..
drwxr-xr-x  3 camilamaia  staff    96 Aug 26 10:22 .circleci
drwxr-xr-x  4 camilamaia  staff   128 Aug 26 10:25 scanapi

~/workspace/my-project
. ls .circleci
config.yaml

~/workspace/my-project
. ls scanapi
scanapi.conf scanapi.yaml

~/workspace/my-project
. █
```

Camila (zsh) ⌘1



```
# my-project/.circleci/config.yml
...
scanapi:
  docker:
    - image: camilamaia/scanapi:2.0.0
  steps:
    - checkout
    - run:
      name: Run ScanAPI
      command: |
        scanapi run scanapi/scanapi.yaml
        -c scanapi/scanapi.conf
        -o scanapi/report.html
    - store_artifacts:
      path: scanapi/report.html
```

```
workflows:
version: 2
main:
  jobs:
    - scanapi:
      filters:
        branches:
          only:
            - master
    - build-push:
      name: build-push-staging
      env: staging
      requires:
        - scanapi
      filters:
        branches:
          only:
            - master
```



Como funciona?

E tem mais 🎉


- Independente de linguagem!
- Especificação da API também é aceita em JSON
- Variável de Ambiente
- Esconder dados sensíveis no relatório
- Especificação da API em vários arquivos
- Templates Customizados
- [Visual Studio Code Plugin](#)



Posso usar?

Com certeza! 👍

📌 Pinned Tweet

 **ScanAPI**
@scanapi_

Version 2.0.0 is live! 🚀

We've fixed some bugs and changed a bit the spec syntax to make it clearer and easier to use. Also, JSON is properly rendered in the report now! 🎨

You can check the full changelog at github.com/scanapi/scanapi

Thanks to everyone that contributed to that ❤️



The screenshot shows a web browser window with the URL `https://scanapi.dev/docs.html`. The page title is "ScanAPI - Documentation". The navigation bar includes "Home", "Docs", "Examples", and social media icons for Twitter and GitHub. The main content area is divided into two columns. The left column is a sidebar with a "Getting Started" section containing "Quick Start" (highlighted in red), "Specification" (with sub-items: "Basic Structure", "API Specification Keys", "Python Code", "Environment Variables", "Custom Variables", "Chaining Requests", "API Specification in Multiple Files"), and "Configuration" (with sub-items: "Command Line Interface - CLI", "Configuration File", "Hiding Sensitive Information"). The right column is titled "Quick Start" and contains sections for "Requirements" (with a red "pip" link), "How to install" (with a terminal snippet: `$ pip install scanapi`), and "Basic Usage". The "Basic Usage" section explains that users need to write an API specification in YAML or JSON. It provides an example configuration for endpoints, requests, and tests. Below this, it instructs users to run the `scanapi` command with a terminal snippet: `$ scanapi run <file_path>`.

Getting Started

- Quick Start
- Specification**
 - Basic Structure
 - API Specification Keys
 - Python Code
 - Environment Variables
 - Custom Variables
 - Chaining Requests
 - API Specification in Multiple Files
- Configuration**
 - Command Line Interface - CLI
 - Configuration File
 - Hiding Sensitive Information

Quick Start

Requirements

pip

How to install

```
$ pip install scanapi
```

Basic Usage

You will need to write the API's specification and save it as a YAML or JSON file. For example:

```
endpoints:  
- name: scanapi-demo # The API's name of your API  
  path: http://demo.scanapi.dev/api # The API's base url  
requests:  
- name: list_all_devs # The name of the first request  
  path: devsj # The path of the first request  
  method: get # The HTTP method of the first request  
tests:  
- name: status_code_is_200 # The name of the first test for this request  
  assert: ${ response.status_code == 200 } # The assertion
```

And run the scanapi command

```
$ scanapi run <file_path>
```

Then, the cli will hit the specified endpoints and generate a `scanapi-report.html` file with the report results.



Próximos passos

E o futuro? 🤖

- Outros métodos HTTP (além de GET, POST, PUT, PATCH, DELETE)
- Documentação + Tutoriais
- Website
- GitHub Action

E se...

- OpenAPI



Por que colaborar com a ScanAPI?

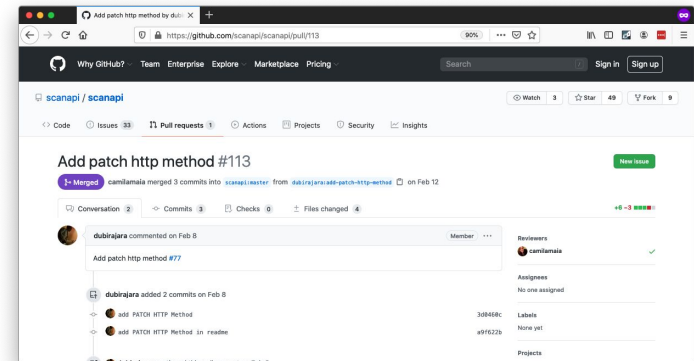
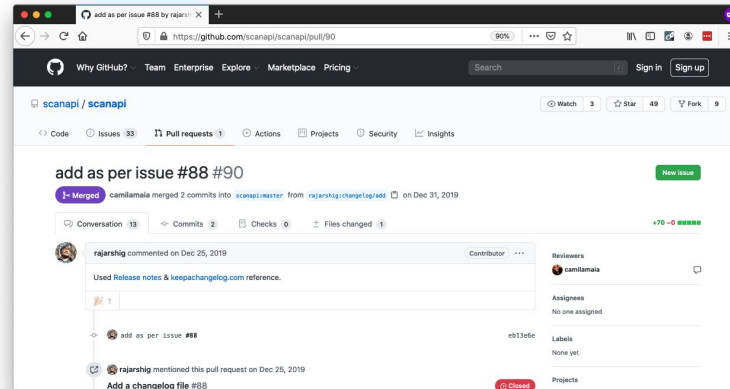
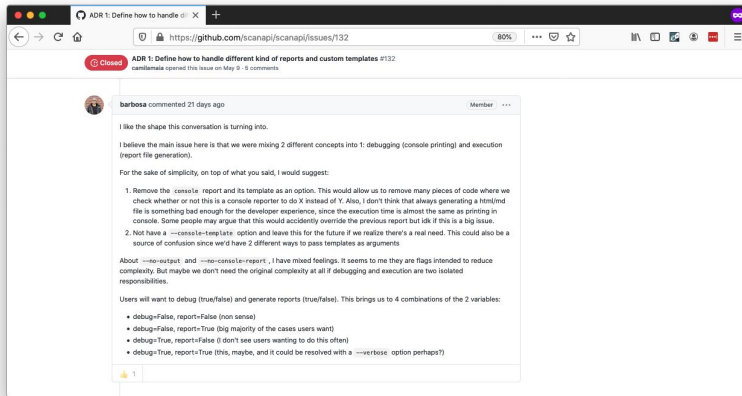
Chega junto! 🚀

- Todas as áreas: automação, backend, front, design
- Python
- Entender como uma lib funciona
- Cobertura de testes > 90%
- Automação
- spectrum.chat/scanapi



Por que colaborar com a ScanAPI?

Chega junto! 🚀



[How Open Source Changed My Life with Max Stoiber](#)

github.com/scanapi ★



scanapi / scanapi

Watch 8 Star 153 Fork 18

Code Issues 24 Pull requests 3 Actions Projects Security Insights

ScanAPI
Automated Integration Testing and Live Documentation for your API
World @scanapi_

Repositories 8 Packages People 7 Projects 1

Pinned repositories

- scanapi**
Automated Integration Testing and Live Documentation for your API
Python ☆ 153 🍴 18
- examples**
ScanAPI examples
HTML ☆ 4 🍴 1
- design**
Icons and logos
☆ 4
- website**
Website for ScanAPI testing framework.
CSS ☆ 5
- vscode-extension**
Provides code completion for the ScanAPI YAML specification.
TypeScript ☆ 2

ScanAPI
@scanapi_

Automated Integration Testing and Live Documentation for your API

github.com/scanapi/scanapi 📅 Joined May 2020

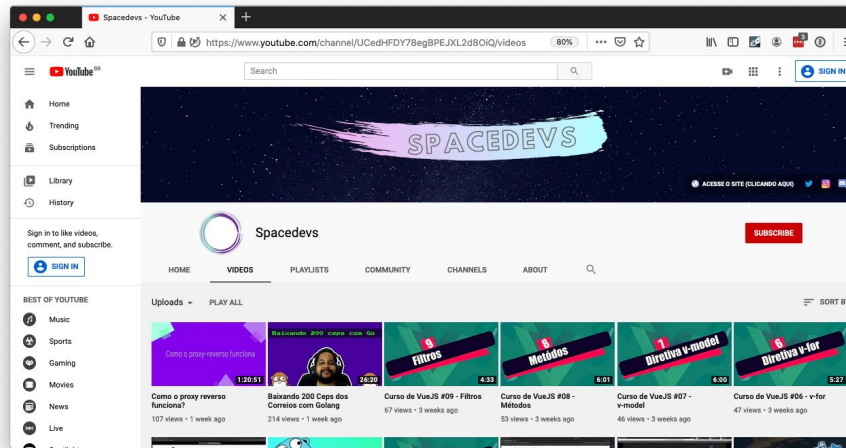
7 Following 34 Followers

Tweets Tweets & replies Media Likes

Live SpaceDevs



Domingo às 15 horas
twitch.tv/spacedevs



[Link Direto](#)



Estamos contratando!

Loadsmart



[Link Direto](#)

The screenshot displays the Loadsmart website interface. At the top, the Loadsmart logo is on the left, and navigation links for SHIPPER, CARRIER, BLOG, CONTACT, LOGIN, and SIGNUP are on the right. The main heading reads "Book a truck in seconds" with the subtext "Hassle free truckload and multimodal shipping for your business. No need to wait – get a quote now." Below this is a selection bar with four options: FTL (selected), Drayage, Dry, and Reefer. Underneath are two input fields: "FROM Pick-up address or City" and "TO Delivery address or City". A prominent green "QUOTE" button is on the right. At the bottom, logos for Wall Street Journal, FreightWaves, Forbes, and Markets Insider are displayed. A blue bar at the very bottom contains the text "Full Truckload".



cmaiacd.com



MUITO OBRIGADA!



@cmaiacd



camilamaia