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REST API Tools Smackdown

July 11th 2020 | 5min | by @marta-krzyk ★ 633 reads



**PROGRAMMING**

#rest-api

#api

#apis

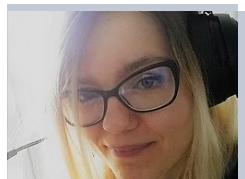
#api-testing

#api-development

#restful-apis

#restful-api

#rest



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Introduction

So you've decided that with your next project you are going to tread the RESTful path. But to be smart about it, you need an intelligent tool to ensure quality and productivity. With the abundance of options available, let's thumb through some of the developers' favorites.

First things first - API definition

Swagger Editor is a popular choice with graphical visualization. APIs can be defined either in JSON or YAML. Additionally, you can generate a server-side or client-side stub for most of the relevant technologies (from ASP.net core and Kotlin to Nodejs and Python).

The screenshot shows the Apicurio Swagger Editor interface. On the left, there is a code editor displaying an OpenAPI 3.0 YAML document. The document defines a sample API with a single endpoint for users. On the right, the generated API documentation is shown, featuring a title "Sample API" with version 0.1.9 and OAS3 compliance. It includes a description, servers, and a default path for users.

```
openapi: 3.0.0
info:
  title: Sample API
  description: Optional multiline or single-line description in [CommonMark](http://commonmark.org/help/) or HTML.
  version: 0.1.0
servers:
  - url: http://api.example.com/v1
    description: Optional server description, e.g. Main (production) server
  - url: http://staging-api.example.com
    description: Optional server description, e.g. Internal staging server for testing
paths:
  /users:
    get:
      summary: Returns a list of users.
      description: Optional extended description in CommonMark or HTML.
      responses:
        '200':
          description: A JSON array of user names
          content:
            application/json:
              schema:
                type: array
                items:
                  type: string
```

Sample API 0.1.9 OAS3
Optional multiline or single-line description in [CommonMark](#) or HTML.
Servers
http://api.example.com/v1 - Optional server description, e.g. Main (production) server
default
GET /users Returns a list of users.

Apicurio is an open-source project, **simple** and elegant tool with support for JSON and YAML. What you get:

- Importing APIs from source control, file, URL
- Integration with your GitHub, GitLab or Bitbucket account
- Previewing live documentation
- Visual editors for designing APIs on Open API standard (no coding skills required!)

The screenshot shows the APICURIO API management tool interface. The left sidebar has three tabs: Dashboard, APIs (selected), and Settings. The main area displays a list of APIs found:

- BakeOffAPI**: Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo.
- BankReconciliation**: Tags: metadata, search. Quis autem vel eum iure reprehenderit qui in ea voluptate velit esse quam nihil molestiae consequatur, vel illum qui dolorem eum fugiat quo voluptas nulla pariatur?
- Dataset**: Tags: metadata, search. This is a test API with dataset
- InvoiceChecker**: Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt
- Petstore**: Another test API. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut
- TESTA**: Tags: store, user, pet. This is a sample Petstore server. You can find out more about Swagger at <http://swagger.io> or on irc.freenode.net, #swagger.

	HIGHLIGHTS	PLATFORMS	PRICE
 Swagger Editor	<ul style="list-style-type: none">Client-code and server-code stubsStyle validationSmart auto-completionInteractive docs generator		 FREE  CUSTOM FOR ENTERPRISES
	<ul style="list-style-type: none">Code-optional designIntegration with GitHub, GitLab, BitbucketLive documentationCreate types from examples	 	 FREE

Watch it go! - Tests and monitors

Postman is an intuitive and well-organized desktop tool. It is one of my personal favorites as it was the first-ever tool that I used to test my own APIs and the learning curve couldn't have been smoother. The product is well-rounded as it covers the API development from **creation** to **testing** and **monitoring**.

With Postman, you can:

- add mock servers,
- switch between environmental setups,
- generate documentation,
- apply custom styling.

Medium and large teams will appreciate the personal and team workspaces, **fork** and **merge features** that work similarly to that of any version control system like GitHub. You can also add a basic API monitor (runs on a minute, hour or week basis) and get **email notifications** about failures.

The screenshot shows the Postman application interface. On the left, there's a sidebar with collections like 'Airly', 'PizzaAPI', 'AnimalAPI_Collection', 'App1', and 'BasicTests'. The main area shows a 'GET intallsation' request under the 'AnimalAPI' collection. The request details include a GET method, a URL with parameters (lat=50.062006, lng=19.940984, maxDistanceKM=3, maxResults=1, apikey=JuT7KLbQM4Isx7WLjoBqV0zYu), and a query parameter 'maxDistanceKM' set to 3. The response body is displayed in JSON format:

```

1  {
2   "id": 8077,
3   "location": {
4     "latitude": 50.062006,
5     "longitude": 19.940984
6   },
7   "address": {
8     "country": "Poland",
9     "city": "Kraków",
10    "street": "Mickiewicza"
11  }

```

Ping API is a powerful **API inspector**. Minimalistic in appearance, it allows the creation of projects for HTTP API calls. After you fill in the request and response data, test code is auto-generated. You can also create **set-up scripts** in JavaScript (or CoffeeScript) that are invoked before each test.

It has a few basic **built-in functions** for parsing, decoding and encoding URIs. In case of failures, a notification is sent via email, Slack or Hipchat. It's especially useful for web developers whose sites need to be responsive around the globe. Tests check APIs responses from 5 locations in 3 continents: in U.S.A., Japan, Germany and Singapore. You can **schedule** to run tests from 1 minute to a full day.

The screenshot shows the API Science dashboard. On the left, a sidebar titled "Ping-API" displays a list of monitoring history entries for "AnimalAPI". Most entries are marked with a red "X" and show failure details, while one entry for a GitHub endpoint is marked with a green checkmark and shows success details. The main area is titled "AnimalAPI" and shows a "Histories" tab selected. A specific test case is expanded, showing a successful GET request to "https://github.com/marta-krzyk-dev/SPA/" from "U.S. Virginia" with a response time of 610 ms and status code 200. Below this, sections for "Storage" and "testCase" are visible.

testCase

REQUEST

```
GET https://github.com/marta-krzyk-dev/SPA/
HEADERS
{
  "id": "",
  "Content-Type": "application/x-www-form-urlencoded",
  "User-Agent": "Mozilla/5.0 (compatible; Yaya/0.0; +https://ping-api.com/)",
  "accept-encoding": "gzip, deflate"
}
```

RESPONSE

STATUS CODE
200

RESPONSE TIME
610 ms

HEADERS

```
{}
```

API Science is an easy-on-the-eye monitoring tool with **graphs** and **charts**. API Science lets you check **health**, **availability**, and **performance** of your or third-party APIs and automatically notifies about failures. The dashboard is straightforward to use and intuitive.

You can upgrade your monitoring with **custom JavaScript scripts** to run with tests (e.g. to load or parse data from JSON) or generate a report (not downloadable). A nice touch is the import option from other popular API-related tools: Postman, Swagger, RAML, HAR. Sad news for the Southern Hemisphere, servers that are located in the US, Japan and Ireland.

API SCIENCE

[Dashboard](#) [Reports](#) [Import](#) [Docs](#) [Blog](#) [My Monitors ▾](#)

OpenWeatherMap API

Example monitor [?](#) [Remove](#)

Name	OpenWeatherMap API	Location	Ireland
Status	Active	Frequency	60 minutes
Method	GET	Details	Show
URL	http://api.openweathermap.org/data/2.5/weather?q=London,uk&appid=[FILTERED]		

Last 10 Checks (oldest to newest)

ms

06/22 22:04

Legend: Transfer (yellow), Processing (green), Connect (light green), Resolve (dark red)

Recent Checks

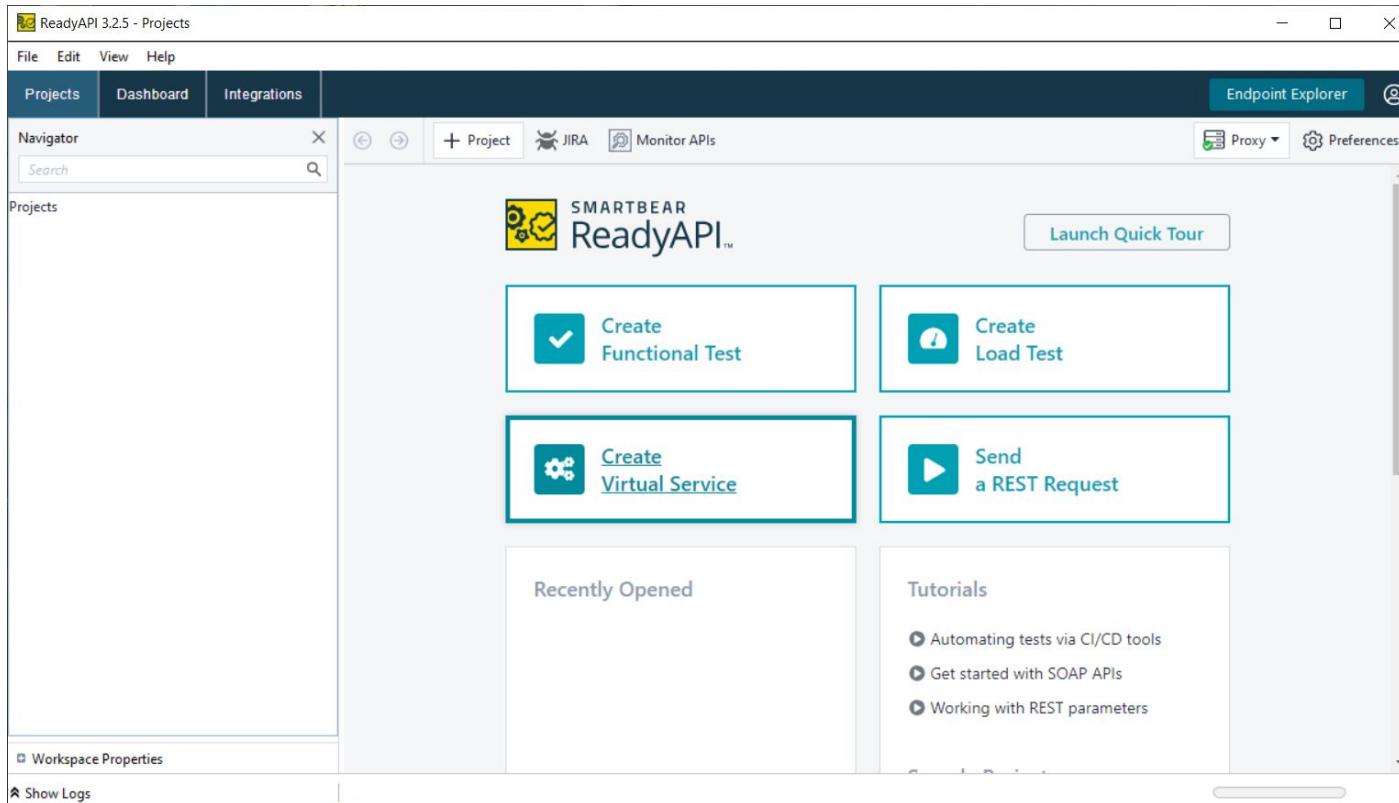
DATE	RESPONSE	STATUS	LOCATION	TOTAL TIME
06/23/20 00:15	200	Success	Ireland	38ms

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ReadyAPI - is an advanced platform for **functional, security, and load testing** for tight integration with your CI/CD pipeline.

ReadyAPI is a combination of 3 tools available for separate licence purchase: SoapUI Pro (functional testing), LoadUI Pro (performance testing), ServiceV Pro (service virtualization). They describe themselves as "the Most **Advanced** API Testing Tool on the Market", and they might be right.

ReadyAPI options are vast and can be intimidating to learn at first. It's not cheap as it's aimed at large companies with large products and complex tests. The projects integrate with several CI/CD tools: Git, Docker, Jenkins, Azure DevOps, TeamCity, and more. Good news for tight budgets: there are **open-source free versions** available for Windows, Linux and Mac, however, the tests are slower.



Insomnia is a desktop app for debugging your API spec with Git sync option. The "Design" section offers **style validation** with detailed error messages. The auto-generated preview might remind API-navvies of Swagger Editor. In the "Debug" section you can tinker your API with:

- **Sending request** with cookies, query and header, body of request is filled in editor;
- Environments configured as JSONs;
- Support for multiple **authorization options**: Basic, Digest, Bearer Token, Microsoft NTLM, OAuth, AWS IAM, Hawk, Atlassian ASAP, Netrc File;
- Client-side code snippet generator for multiple languages, some with different library implementations.

The platform can be extended with **installable plugins** made by Insomnia community. The plugins cover JWT and token generators, environmental setups, XML-JSON translators, randomizers and UI themes. With **paid** plans, teams can collaborate and host the

project in the **cloud**.

The screenshot shows the Talend API Tester application window. On the left, the Swagger YAML file structure is displayed:

```

swagger: '2.0'
info:
  description: This is a simple API
  version: 1.0.0
  title: Simple Inventory API
  # put the contact info for your development or API team
  contact:
    email: you@your-company.com
  license:
    name: Apache 2.0
    url: http://www.apache.org/licenses/LICENSE-2.0.html
  # tags are used for organizing operations
  tags:
    - name: admins
      description: Secured Admin-only calls
    - name: developers
      description: Operations available to regular developers
paths:
  /inventory:
    get:
      tags:
        - summary
        - operationId
        - description
      produces:
      parameters:
      responses:
    post:
      tags:
        - summary
        - operationId
        - description
      consumes:
      produces:
      parameters:
      responses:
  definitions:
  host:
  Preferences

```

The right side shows the generated API documentation for "Simple Inventory API 1.0.0". It includes the API title, description, contact information, and a "Schemes" dropdown set to "HTTPS". Below this, two security schemes are listed: "admins" (Secured Admin-only calls) and "developers" (Operations available to regular developers). A "Models" section is also present.

Talend API Tester is a free tool dedicated to testing HTTP and REST APIs. The significant functionalities are:

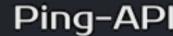
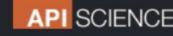
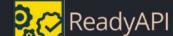
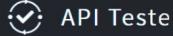
- Sending requests and **inspecting responses**
- Validating API behaviour
- Importing Postman, Swagger, OAS, OpenAPI, HAR test collections

With API Tester you can create dynamic requests with custom variables, security and authentication and keep them organized as projects or services. You can run assertions against the responses of different formats (JSON, XML, HTML and others). **Assertions** are created in visual editors.

The screenshot shows the REST API Tools Smackdown interface. The main area displays the "Airly" scenario details. The scenario was last run on 2020-06-23 14:19:47, took 0.75s, and resulted in Success. The environment is Env1. The scenario includes the following requests:

- GET Inventory of installments
- GET intsallation
- GET Źory installation
- Measurement for Źory
- GET Inventory of installments

Each request has an "Edit request" button and a green checkmark icon. At the bottom, there are buttons for "+ Add a service", "+ Add a scenario", and "+ Add a request". The left sidebar shows the project structure with "MY DRIVE" containing "Airly" (with several requests) and "InventoryAPI" (with "Service 2" and "Get 50 items from invent..."). There is also a "Scenario 1" entry. The bottom navigation bar includes "Export", "Import", and a "+ Project" button.

	HIGHLIGHTS	PLATFORMS	PRICE
 Postman	Documentation generator Monitoring Intercepting requests Automated testing Collaboration tools Custom pre-test JavaScript scripts Automated testing 5 servers worldwide (USA, Asia, Europe) Failure notifications	  	 FREE  CUSTOM FOR ENTERPRISES  \$12, \$24 / MONTH
 Ping-API	Performance graphs Report generator Test intervals between 1 min - 1 hour Alerts		 FREE  \$5 - \$100 / MONTH
 API Science	Advanced tool Functional testing Performance testing Service virtualization REST, SOAP, GraphQL and other		 FREE TRIAL  \$29 - \$599 / MONTH
 ReadyAPI	Design and debug API Extendable with plugins Authentication helpers Code generation	  	 FREE TRIAL  CUSTOM
 Insomnia	Team collaboration in cloud		 \$5, \$8 / MONTH  \$50, \$80 / YEAR
 API Tester	Test REST and HTTP APIs Environment variables Response assertions Request history		 FREE

Bringing the API out to the world

Apigee is an online platform that enables you to **build, manage, consume** APIs and expose its functionalities via a portal for your consumers. From all the online tools mentioned in this smackdown, Apigee set itself apart from the others with the most elegant web experience, analytical tools, proxy creator, and **sweet website generator**.

If you need to adopt a SOAP service into a REST one, or you consume API but would like to expose API's backend services via a middleman, you are presented with proxy wizards with lots of policy options (quotas, authentications, data mediation, caching).

Apigee offers the consumer, neat, modern and straightforward portals including interactive **auto-generated documentation** sites for your APIs. The portal templates, with CSS themes, HTML and user management premade is ready to be customized or published right away. To ensure world-class API performance, their **analytics tool** and charts cover:

- latency,
- response time,
- geographical distribution of API usage,
- proxy performance,
- error code analytics.

The screenshot shows a REST API documentation interface for the "Simple Inventory API". The top navigation bar includes links for Home, APIs, Quick Start, and Sign In. A "DOWNLOAD SPEC" button is located in the top right corner. The main content area features a sidebar on the left with sections for SIMPLE INVENTORY API Overview, PATHS, and COMPONENTS (including Schemas like InventoryItem and Manufacturer). The main content area displays the details for the GET /inventory endpoint. It includes a brief description: "By passing in the appropriate options, you can search for available inventory in the system". Below this is an "HTTP request" section with the URL `https://virtserver.swaggerhub.com/tammarscream/Simple/1.0.0/inventory`. The "Query Parameters" section lists three parameters: searchString (string, description: "pass an optional search string for looking up inventory"), skip (integer (int32), description: "0 ≤ value"), and limit (integer (int32), description: "number of records to skip for pagination"). The bottom navigation bar contains links for Home, APIs, and Terms and Conditions.

SIMPLE INVENTORY API

Overview

PATHS

/inventory GET

/inventory POST

COMPONENTS

‑ Schemas

 InventoryItem

 Manufacturer

GET /inventory

By passing in the appropriate options, you can search for available inventory in the system

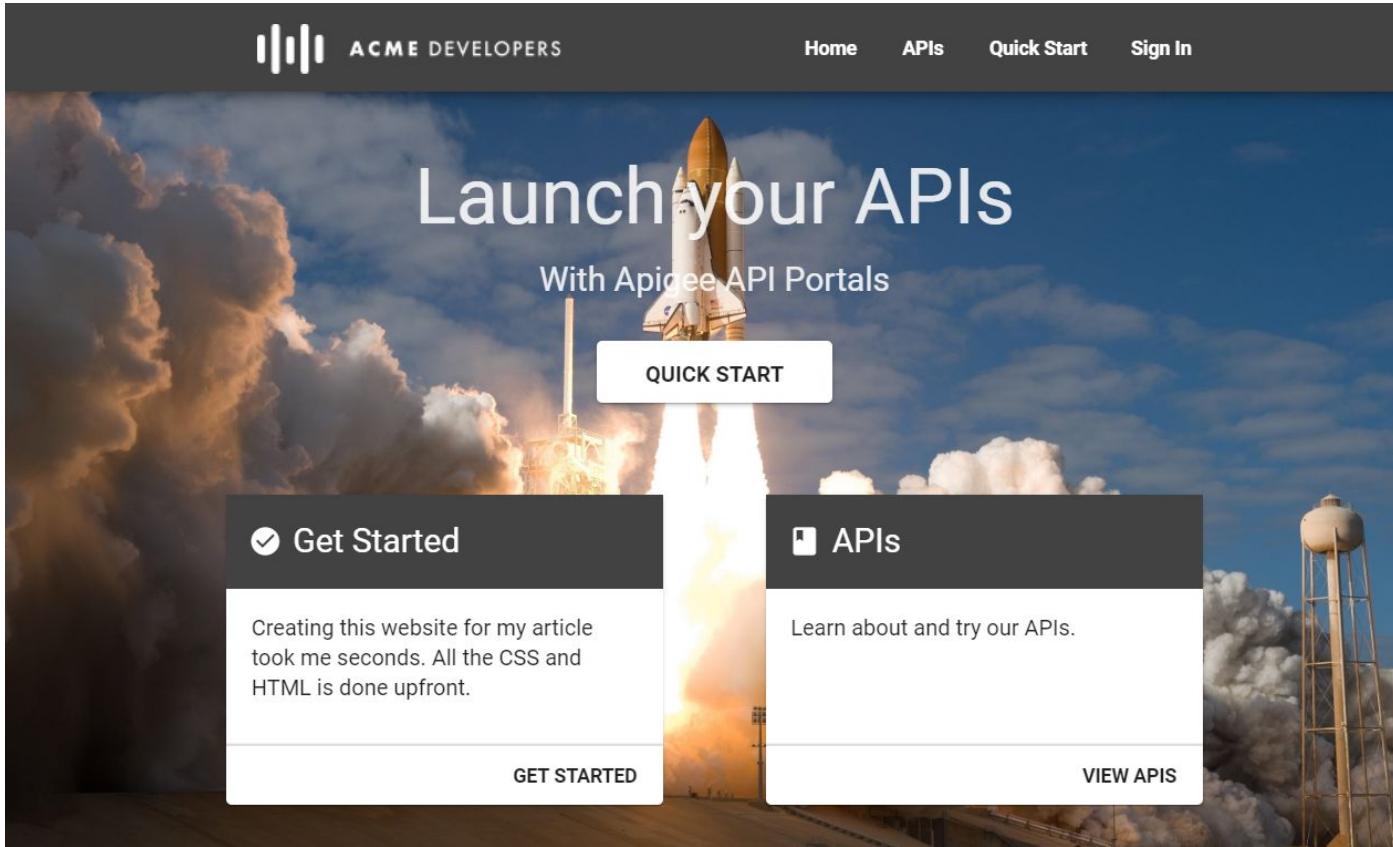
HTTP request

`https://virtserver.swaggerhub.com/tammarscream/Simple/1.0.0/inventory`

Query Parameters

Parameter	Type	Description
searchString	string	pass an optional search string for looking up inventory
skip	integer (int32) 0 ≤ value	0 ≤ value number of records to skip for pagination
limit	integer (int32) 0 ≤ value ≤ 50	0 ≤ value ≤ 50

Home APIs Terms and Conditions



Putting the moving parts together

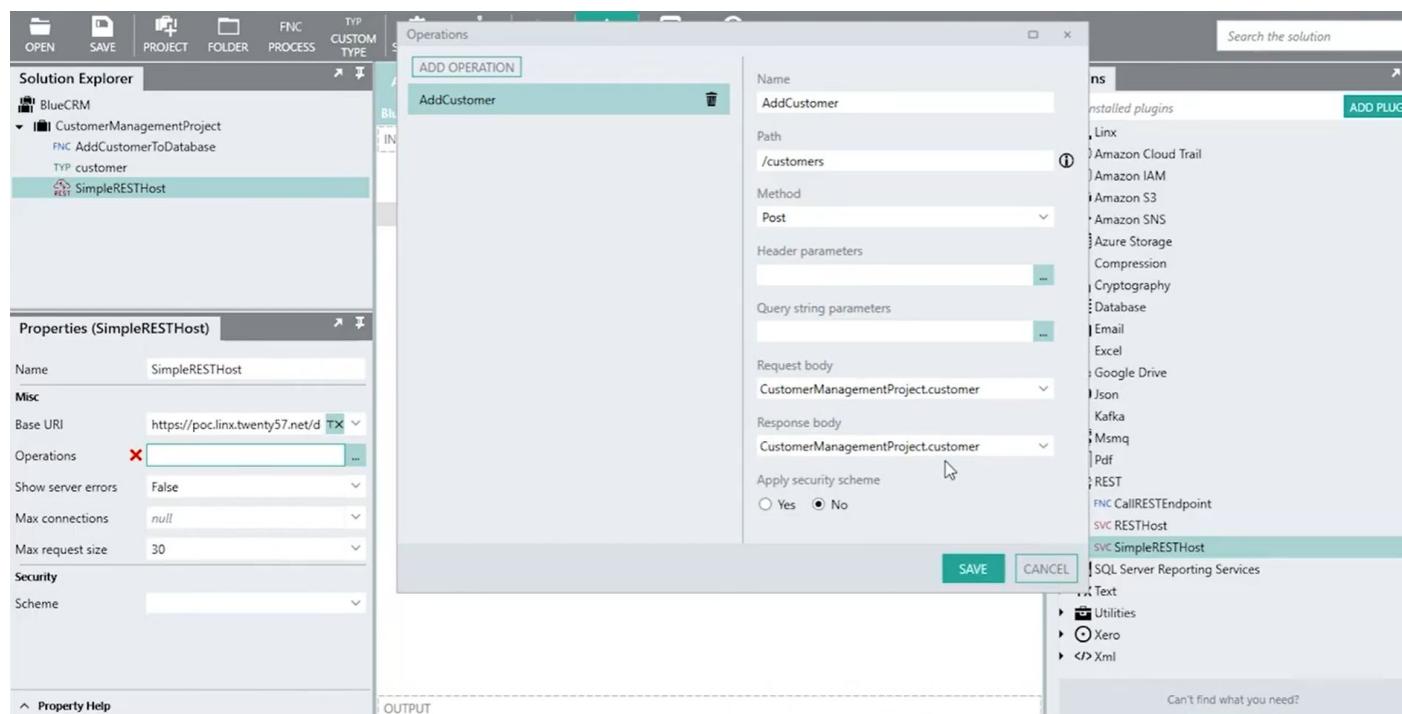
Linx is a sophisticated developer tool for **backend integrations, automations** and **web services**. The main use scenarios are:

- Building, hosting and **managing multiple APIs** with one platform,
- Consuming and orchestrating data across many technology end-points,
- Accelerating API Development,
- Simplifying existing APIs.

Linx is particularly powerful for creating or calling internal and external REST web services. It is on the fastest ways to extend an API that requires **integration with other technologies** (e.g. you need to load or push data into a database, conjure up a rapport, push

updates to notification steam, modify or encrypt data at any point, etc).

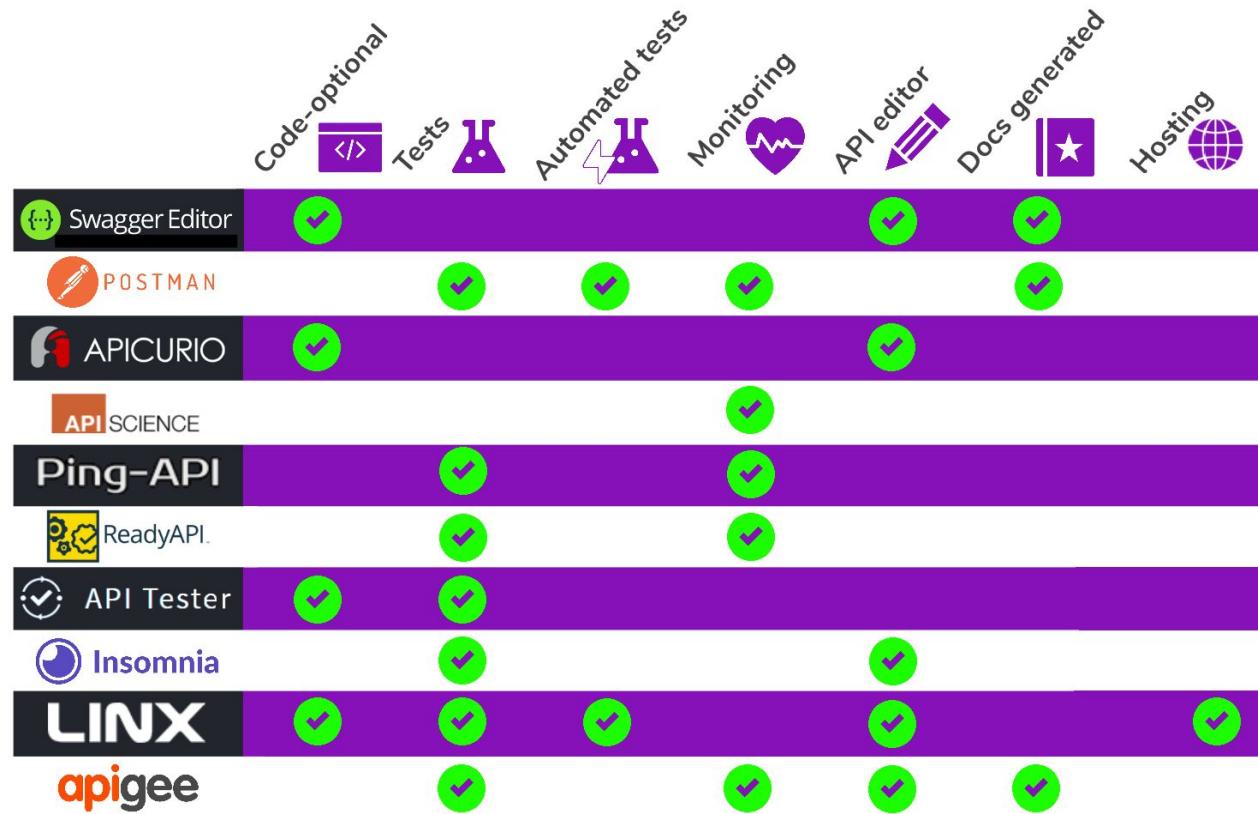
Alongside REST, Linx offers several other features from database to cryptography and cloud, which creates tons of possibilities for integrating your API with multiple different technologies. The Linx IDE Designer is a great, free option for carrying out tests and service calls. If you want to monitor and automatize the test suits or schedule calls either **on-premise or in cloud**, you will need to upgrade to the paid Linx Server.



	HIGHLIGHTS	PLATFORMS	PRICE
 	Build and host APIs Extendable with tons of installable services and features (cloud, databases, encryption and more) Integrate APIs with other technologies REST Hosts created with visual editor		 FREE  CUSTOM
	Cloud and on-premise hosting Monitoring and project automatization		 \$149 / MONTH
	Build REST service on top of SOAP Publish API through customizable portal Analytics tools Proxy wizard Clear, interactive API documentation		 FREE TRIAL  CUSTOM

Feature smackdown

Still at a lost? Use the comparison table below to help yourself decide.



Conclusion

With REST's and APIs' taking root in the digital world, one can only expect more tools to appear.

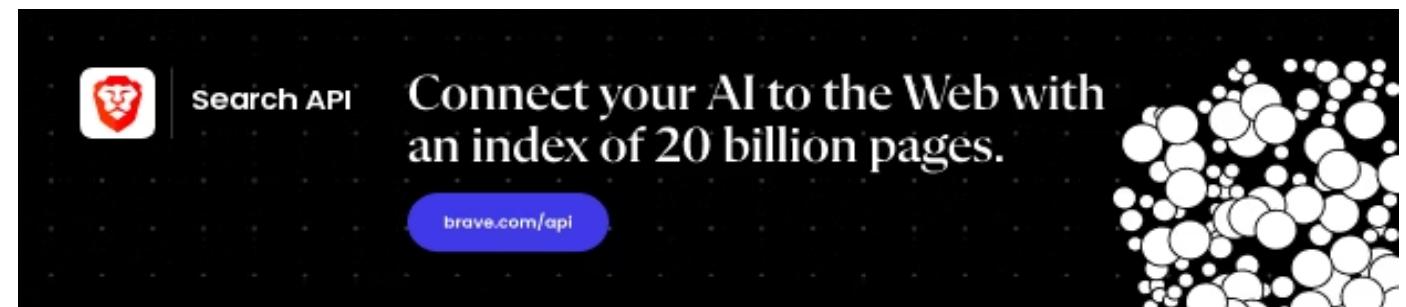
Now that you had a glimpse of options above, tailored for different needs of various size teams, projects and capabilities. If you are not happy with your current choice, it's easy enough to hop and experiment. Let me know your favorites in the comments below.

Happy hunting.



by Marta Krzyk [@marta-krzyk.](#)

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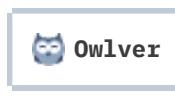
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