

What is REST API? How can you get data for your app or website?

With REST API, you will get a representation of the required data stored in the database. REST API is also stateless, meaning the server does not store any data between requests from the client.

The abbreviation API stands for Application Programming Interface. An API is a set of functions that support communication between two software applications. Essentially, the API takes requests from one software application to another, then returns to the originating software with the appropriate response.

REST stands for Representational State Transfer, an architecture used to design client-server applications. With REST API, you will get a representation of the required data stored in the database. REST API is also stateless, meaning the server does not store any data between requests from the client.

How does REST API work?

REST API accesses data through URI (Uniform Resource Identifier). URIs are strings of characters that identify a specific resource. The specific type of URI used by a REST API is usually a URL (Uniform Resource Locator).

To access and manipulate resources, the REST API uses the following request verbs:

1. **Get** - fetches data from the database.
2. **Post** - adds new data to the database.
3. **Put** - updates data to the database.
4. **Delete** - deletes data from the database.

If you want to consume the services of one of the many REST APIs available on the web (instead of building one from scratch), you will only have access to the REST API's get request verb (via the URL). These URLs have several components, but the ones you need to know are the API key and query.

An API key is a unique identifier you will receive when you register on the REST API platform. A query is usually a simple equation used to personalize your search. Therefore, if you want to know the current weather in New York City, the query part of your URL might be '**city=New York**' .

Executing a get request returns a response that includes a status code and content. If the request is successful, your response will contain data that you intend to use on your website or app.

Use JavaScript application to get data from different REST APIs

To build this JavaScript application, there are two software applications you need to install on your computer: NodeJS and npm. After installing the above applications, you need to do the following steps:

1. Open your IDE and launch terminal.
2. Navigate to the directory containing your JavaScript application files using the cd command.
3. Initialize npm with the following line of code:

```
npm init -y
```

There is an npm module that will play a major role in the functionality of this application. This is the got module, which is an HTTP request library for NodeJS. The following line of code will install the latest version of the got library in your application files:

```
npm install got@latest
```

Now, you can go ahead and build your application.

Use the Got library to build the application

```
// import the got library into your application import got from 'got'; // fetch
```

The above application will pull data from any REST API on the web. However, you first need to provide the URL to the relevant resource.

Get data from the weather REST API

The Weatherbit.io API is one of the more popular weather APIs. Inserting the URL of this API into the simple JavaScript application above will get it working.

Use Weatherbit.io's REST API

```
// import the got library into your application const got = require('got'); // f
```

The URL for the Weatherbit.io API is now part of the app. However, there is one aspect of the URL that you need to adjust for the app to run. This is the section labeled '**API_KEY**'. The API key is what you will receive from Weatherbit.io when you sign up for a free account.

You also have the option to adjust the query in the above code. The app currently queries the weather at latitude 40.7128 and longitude -74.0060, but you can insert new coordinates. Although the query above is the recommended approach, you can search for the weather in a location by city name.

After inserting the API key in the relevant section above, you can now execute your JavaScript file. The application will display something like the following output in your terminal:

```
PS C:\Users\kadei\OneDrive\Documents\MUO_small_projects\rest_api> node app.js
{
  count: 1,
  data: [
    {
      app_temp: 15.8,
      aqi: 59,
      city_name: 'New York City',
      clouds: 11,
      country_code: 'US',
      datetime: '2023-10-25:15',
      dewpt: 8.5,
      dhi: 98.12,
      dni: 807.75,
      elev_angle: 32.09,
      ghi: 520.65,
      gust: null,
      h_angle: -30,
      lat: 40.7128,
      lon: -74.006,
      ob_time: '2023-10-25 15:00',
      pod: 'd',
      precip: 0,
      pres: 1024.6,
      rh: 62,
      slp: 1026.1,

```

```
      pod: 'd',
      precip: 0,
      pres: 1024.6,
      rh: 62,
      slp: 1026.1,
      snows: 0,
      solar_rad: 520.4,
      sources: [Array],
      state_code: 'NY',
      station: 'WTCN6',
      sunrise: '11:18',
      sunset: '22:01',
      temp: 15.7,
      timezone: 'America/New_York',
      ts: 1698246000,
      uv: 3.267259,
      vis: 16,
      weather: [Object],
      wind_dir: 'SSW',
      wind_dir_full: 'south-southwest',
      wind_dir: 208,
      wind_spd: 2.81
    }
  ]
}
```

Some of the more important aspects of response data include:

1. **city_name** - the name of the city at the provided latitude and longitude.
2. **datetime** - current cycle time in YYYY-MM-DD:HH format.
3. **weather** - an object containing a weather icon, weather code, and a text description of the weather.

Get data from news REST API

This section uses the Newsdata.io API. Like all REST APIs on the web, it provides several query options that you can use to retrieve breaking news from around the world. With the Newsdata.io API, you can get news from a specific country or in a specific language, category, etc.

Using JavaScript Application you can retrieve data from the news REST API. Just replace the URL in the above application with the following URL:

```
'https://newsdata.io/api/1/news?apikey=YOUR_API_KEY&country=us'
```

The next step is to replace the '**YOUR_API_KEY**' part in the URL above with the API key that you will receive after registering with Newsdata.io. The URL above will return breaking news from the US. However, if you want news from Japan, you can simply replace the query '**country=us**' with '**country=jp**'.

The response body will be an array of objects containing news from the US. The following object is the first object in the array:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS powerhell - rest api + - - - - x
PS C:\Users\kadel\OneDrive\Documents\WUO_small_projects\rest_api_node_app.js
{
  status: 'success',
  totalResults: 7992,
  results: [
    {
      article_id: '3b9ed6eb80bc9883c1a092e3a0b0833',
      title: 'Starfield's Community Patch is here, bringing bug fixes and tweaks',
      link: 'https://www.destructoid.com/starfields-community-patch-is-here-bringing-bug-fixes-and-tweaks/?utm_source=rss&utm_medium=rss&utm_campaign=starfields-community-patch-is-here-bringing-bug-fixes-and-tweaks',
      keywords: [Array],
      creator: [Array],
      video_urls: null,
      description: 'It's no secret that Bethesda games are notorious for being pretty broken. Starfield is no exception and while we wait around for Todd Howard and his crew to unleash an update for its latest IP, the fan base has things covered for now. As spotted by DSO Gaming, Starfield's Community Patch is now ready to download if you have the game on PC. The mod is the result of a series of people working together to make improvements to Bethesda's space-faring RPG. You can download the patch here. Image via Bethesda/Steam. Bundled with this fan-made mod is a series of fixes for the game, including addressing script errors, game-breaking exploits, faulty quests, inconsistencies, and more. It even fixes a few spelling errors as well. What the Community Patch is not while this mod aims to fix some glaring and not-so-glaring problems with Starfield, it's good to clear the air about what you shouldn't expect from the download. For starters - as the description itself says - the Community Patch does not offer any new content or changes to the overall balance of the game outside "correcting obvious errors." It's specifically designed to address glitches and some other issues, hopefully making for a better experience. The patch also uses an MIT license, which means it's open-source. As a result, this mod is "intended to be owned by the community, rather than an individual or team." Therefore, anybody who wishes to contribute to the patch can do so. Obviously, Bethesda will be sending out its own hotfixes and updates in the future. What these will address cannot be said at this stage, so it's nice to have a fan solution in the interim. The post Starfield's Community Patch is here, bringing bug fixes and tweaks appeared first on Destructoid.',
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      pubDate: '2023-10-25 14:19:49',
      image_urls: null,
      source_id: 'destructoid',
      source_priority: 3224,
      country: [Array],
      category: [Array],
      language: 'english'
    }
  ]
}
```

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS powerhell - rest api + - - - - x
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  pubDate: '2023-10-25 14:19:49',
  image_urls: null,
  source_id: 'destructoid',
  source_priority: 3224,
  country: [Array],
  category: [Array],
  language: 'english'
```

Use Python application to get data from various rest APIs

You can get data for your website or app in any programming language you're familiar with. So, if you don't want to use JavaScript, you can achieve the same result with a Python application. You can build a Python API using one of its frameworks or get data from an existing REST API using a simple script.

All you need to do is install the request python HTTP module using the pip environment. Then you can build your Python application with the following code:

```
# import the requests library import requests # grabbing data using the requests
```

Like the previous examples, you will need to insert your API key in the relevant section. You will then receive a response body similar to what the JavaScript application returns.

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\kadei\OneDrive\Documents\WUO_small_projects\python_rest_api> python app.py
status success
totalResults 8004
results [{"article_id": "7ff99d89c2e9eddd7df5f959c97df3", "title": "Estrogen therapy's effect on Alzheimer's needs more study", "link": "http://news.cornell.edu/stories/2022/10/estrogen-therapys-effect-alzheimers-needs-more-study", "keywords": None, "creator": None, "video_url": None, "description": "Research findings suggest that women who took hormones in midlife to treat their menopause symptoms were less likely to develop dementia than those who hadn't taken estrogen.", "content": "Estrogen-based menopause hormone therapy for women in midlife should be investigated more thoroughly as a potential strategy for preventing Alzheimer's disease, the most common form of dementia, according to a new analysis from researchers at Weill Cornell Medicine. The researchers, whose findings in Frontiers in Aging Neuroscience, performed a meta-analysis of six clinical trials and 45 observational studies, encompassing more than 6 million women, in which women were given estrogen-based therapy. The findings suggest that women who took hormones in midlife to treat their menopause symptoms were less likely to develop dementia than those who hadn't taken estrogen. Women taking estrogen at ages 45 and older, however, did not have a lower chance of an eventual dementia diagnosis compared with peers who did not receive hormone therapy. \"These findings highlight the fact that we need more conclusive research on the possible Alzheimer's preventing effect of menopause hormone therapy,\" said study senior author, director of the Alzheimer's Prevention Program and of the Woman's Brain Initiative and an associate professor in the department of neurology at Weill Cornell Medicine. The study's first author is Dr. Matilde Nerattini, a visiting fellow in neurology at Weill Cornell Medicine. The estimated lifetime risk for Alzheimer's disease for a 45- to 50-year-old woman is approximately 26%, compared with 18% for a man of the same age. The risks for both sexes are one percentage point higher for both at age 65. Research suggests that estrogen has a protective effect on the brain, and the loss of this protection as estrogen production wanes during menopause may partly explain why females with Alzheimer's disease outnumber their male counterparts. But does replacing estrogen reduce women's Alzheimer's risk? Studies in animal models suggest that it does, but the question has been difficult to answer conclusively in clinical research, because of the large time gap between menopause, usually in the early 50s, and the onset of Alzheimer's two to three decades later. \"It isn't really feasible to run a clinical trial of estrogen therapy for that length of time to look for a dementia-preventing effect,\" Mosconi said. \"We need more clinical trials evaluating the effects of midlife hormone therapy on biological indicators of Alzheimer's disease, which we can now measure using brain imaging and fluids such as blood.\" The clinical trials used to address this question have enrolled older women, and generally have found no protective effect of estrogen against dementia. But Mosconi notes that estrogen replacement may need to start much earlier, in midlife at the time of menopause, to be able to prevent or delay the Alzheimer's process. In the new study, she and her team pooled the data from the 51 prior studies to compare estrogen therapy in midlife versus late life\""}]
```

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