

How do web APIs work? Why are they useful?

Application Programming Interfaces or APIs allow the transmission of data from system to system. The whole reason for this is to create a connected experience for the user, they provide a standard way of accessing any data or device. You're probably familiar with using your bank website to check for your statements and balance, essentially the application you're using interacts with your bank's API and will give access to that data. This is just one example of a web API but there are also 100s if not thousands of other APIs available to use online.

What does REST stand for? What is REST? What are some of the key concepts that identify REST?

Continuing where we left off in the last paragraph, another available API is a Representational State Transfer or REST. REST is a set of "architectural constraints, not a protocol or a standard." In order for an API to be considered "RESTful" it has specific concepts which would be, a client-server design managed through HTTP, "stateless" client server communication, meaning each request between the client and server is not stored and they are all separate, "cacheable data that streamlines client-server interactions", a uniform interface so information transfer is in one form**, "a layered system that organizes each type of server involved in the retrieval of requested information into hierarchies(This is invisible to the client)", and finally, an optional ability to send executable code from server to client to extend client functionality. Which is a lot of information to take in if you've never dealt with APIs or REST but the knowledge is very important.

["https://blogs.mulesoft.com/learn-apis/api-led-connectivity/what-are-apis-how-do-apis-work/#:~:text=They%20allow%20the%20transmission%20of.shopping%20from%20your%20mobile%20phone."](https://blogs.mulesoft.com/learn-apis/api-led-connectivity/what-are-apis-how-do-apis-work/#:~:text=They%20allow%20the%20transmission%20of.shopping%20from%20your%20mobile%20phone.)

["https://www.redhat.com/en/topics/api/what-is-a-rest-api"](https://www.redhat.com/en/topics/api/what-is-a-rest-api)

** Added this information for my future reference. This requires that:

- resources requested are identifiable and separate from the representations sent to the client.
- resources can be manipulated by the client via the representation they receive because the representation contains enough information to do so.
- self-descriptive messages returned to the client have enough information to describe how the client should process it.
- hypertext/hypermedia is available, meaning that after accessing a resource the client should be able to use hyperlinks to find all other currently available actions they can take.