**API Info**

Reference: <https://en.wikipedia.org/wiki/List_of_HTTP_status_codes>

<https://httpstatuses.com/>

<https://learning.postman.com/docs/getting-started/introduction/>

json path finder chrome extension

https://reqres.in/

**What is an API?**

* API stands for the Application Programming Interface,
* They are basically a collection of functions and procedures which allows us to communicate two applications or libraries
* In short, it is like a connector between two services as shown in the picture.
* API testing is testing that APIs and its integration with the services.
* It is one of the most challenging types of
* testing If we miss the certain cases in API Testing that can cause a very big problem in production after full integration and it will hard to debug in the production environment…

**In one line, API is it’s an interface between different software programs or service.**

Ex: Suppose you go to a restaurant.

API is the messenger(waiter) that takes your order from you and tells to the chef in (kitchen), what food to be prepared and after some time waiter returns with the ordered food.

**In one line, API is it’s an interface between different software programs or service.**

**Type of APIs :-**

* SOAP
* JSON RPC
* XML RPC
* REST

**Why you should perform API Testing?**

* Many of the services that we use every day rely on hundreds of different interconnected APIs, if any one of them fails then the service will not work.
* Right now, Internet uses millions of APIs and they should be tested thoroughly.
* Developers make mistake and they create buggy APIs…
* Validation of APIs is very important which are going live to production.

**What to Test in API Testing?**

* Validate the keys with the Min. and Max range of APIs (e.g maximum and minimum length)
* Have a test case to do XML, JSON Schema validation.
* Keys verification. If we have JSON, XML APIs we should verify it’s that all the keys are coming.
* Verify that how the APIs error codes handled.

**What is SOAP?**

**SOAP (Simple Object Access Protocol)**

It is a messaging protocol that allows programs that run on disparate operating systems or services like frontend or backend to communicate using Hypertext Transfer Protocol (HTTP) and its Extensible Markup Language (XML).

**What is REST?**

**As REST is an acronym for**

Representational State Transfer, statelessness is key. An API can be REST if it follows the below constraints.

* The REST architectural style describes six constraints. These constraints, put on the architecture, were initially communicated by Roy Fielding in his doctoral dissertation and deﬁnes the basis of RESTful-style.

**SOAP vs REST**

**Who Users REST APIs**

The ﬁrst constraint of the REST API states that the Client and server has to communicate and agree to certain rules based on resources (they should communicate with same resource like json, xml, html, txt) and with proper encoding like UTF-8 extra.

* APIs in REST is stateless and Client and server don’t worry about the state of the request or response.
* Stateless means the server does not remember anything about the user who uses the API.
* It doesn’t remember if the user of the API already sent a GET request for the same resource in the past
* According to the World Wide Web, clients can cache responses. Responses should, therefore, implicitly or explicitly, deﬁne themselves as cacheable. It’s up to server when they want the cache to expired etc.
* This means that the data the server sends contain information about whether or not the data is cacheable.
* If the data is cacheable, it might contain some sort of a version number. The version number is what makes caching possible
* Client and Server are two different entity, It means that servers and clients may also be replaced and developed independently, as long as the interface is not altered.

It means that the between client and server there can be any number of layered systems it does not matter.

The server can store the Code or logic to themselves and transfer it whenever needed rather client-side logic.

**HTTP (Hypertext transfer protocol)**

HTTP (Hypertext transfer protocol) is perhaps the most popular application protocol used in the internet or the web

An HTTP client sends a request message to an HTTP server.

The server, in turn, returns a response message. In other words, HTTP is a pull protocol, the client pulls information from the server (instead of server pushes information down to the client)

HTTP is a **Stateless protocol**.

Request

Client or Browser

Server or web server

Response

**HTTP port query**

**URL:** [**http://www.domain.com:1234/path/to/resource?a=b&x=y**](http://www.domain.com:1234/path/to/resource?a=b&x=y)

**Protocol Host resource path**

**HTTP methods:**

|  |  |
| --- | --- |
| **Method** | **Description** |
| GET | Request to read a web page |
| HEAD | Request to read a web page’s header |
| PUT | Request to store a web page |
| POST | Append to named resources (ex: a web page) |
| DELETE | Remove the web page |
| TRACE | Echo the incoming request |
| CONNECT | Reserved for the future use |
| OPTIONS | Query certain options |

**HTTP Status code:**

Status Code:

Status codes are issued by a server in response to a client’s request made to the server.

Status codes:

* 1xx informational response – the request was received, continuing process
* 2xx successful – the request was successfully received, understood, and accepted
* 3xx redirection – further action needs to be taken in order to complete the request
* 4xx client error – the request contains bad syntax or cannot be fulfilled
* 5xx server error – the server failed to fulfil an apparently valid request

# HTTP Status Codes

httpstatuses.com is an easy to reference database of HTTP Status Codes with their definitions and helpful code references all in one place. Visit an individual status code via httpstatuses.com/code or browse the list below.

## 1×× Informational

* [**100** Continue](https://httpstatuses.com/100)
* [**101** Switching Protocols](https://httpstatuses.com/101)
* [**102** Processing](https://httpstatuses.com/102)

## 2×× Success

* [**200** OK](https://httpstatuses.com/200)
* [**201** Created](https://httpstatuses.com/201)
* [**202** Accepted](https://httpstatuses.com/202)
* [**203** Non-authoritative Information](https://httpstatuses.com/203)
* [**204** No Content](https://httpstatuses.com/204)
* [**205** Reset Content](https://httpstatuses.com/205)
* [**206** Partial Content](https://httpstatuses.com/206)
* [**207** Multi-Status](https://httpstatuses.com/207)
* [**208** Already Reported](https://httpstatuses.com/208)
* [**226** IM Used](https://httpstatuses.com/226)

## 3×× Redirection

* [**300** Multiple Choices](https://httpstatuses.com/300)
* [**301** Moved Permanently](https://httpstatuses.com/301)
* [**302** Found](https://httpstatuses.com/302)
* [**303** See Other](https://httpstatuses.com/303)
* [**304** Not Modified](https://httpstatuses.com/304)
* [**305** Use Proxy](https://httpstatuses.com/305)
* [**307** Temporary Redirect](https://httpstatuses.com/307)
* [**308** Permanent Redirect](https://httpstatuses.com/308)

## 4×× Client Error

* [**400** Bad Request](https://httpstatuses.com/400)
* [**401** Unauthorized](https://httpstatuses.com/401)
* [**402** Payment Required](https://httpstatuses.com/402)
* [**403** Forbidden](https://httpstatuses.com/403)
* [**404** Not Found](https://httpstatuses.com/404)
* [**405** Method Not Allowed](https://httpstatuses.com/405)
* [**406** Not Acceptable](https://httpstatuses.com/406)
* [**407** Proxy Authentication Required](https://httpstatuses.com/407)
* [**408** Request Timeout](https://httpstatuses.com/408)
* [**409** Conflict](https://httpstatuses.com/409)
* [**410** Gone](https://httpstatuses.com/410)
* [**411** Length Required](https://httpstatuses.com/411)
* [**412** Precondition Failed](https://httpstatuses.com/412)
* [**413** Payload Too Large](https://httpstatuses.com/413)
* [**414** Request-URI Too Long](https://httpstatuses.com/414)
* [**415** Unsupported Media Type](https://httpstatuses.com/415)
* [**416** Requested Range Not Satisfiable](https://httpstatuses.com/416)
* [**417** Expectation Failed](https://httpstatuses.com/417)
* [**418** I'm a teapot](https://httpstatuses.com/418)
* [**421** Misdirected Request](https://httpstatuses.com/421)
* [**422** Unprocessable Entity](https://httpstatuses.com/422)
* [**423** Locked](https://httpstatuses.com/423)
* [**424** Failed Dependency](https://httpstatuses.com/424)
* [**426** Upgrade Required](https://httpstatuses.com/426)
* [**428** Precondition Required](https://httpstatuses.com/428)
* [**429** Too Many Requests](https://httpstatuses.com/429)
* [**431** Request Header Fields Too Large](https://httpstatuses.com/431)
* [**444** Connection Closed Without Response](https://httpstatuses.com/444)
* [**451** Unavailable For Legal Reasons](https://httpstatuses.com/451)
* [**499** Client Closed Request](https://httpstatuses.com/499)

## 5×× Server Error

* [**500** Internal Server Error](https://httpstatuses.com/500)
* [**501** Not Implemented](https://httpstatuses.com/501)
* [**502** Bad Gateway](https://httpstatuses.com/502)
* [**503** Service Unavailable](https://httpstatuses.com/503)
* [**504** Gateway Timeout](https://httpstatuses.com/504)
* [**505** HTTP Version Not Supported](https://httpstatuses.com/505)
* [**506** Variant Also Negotiates](https://httpstatuses.com/506)
* [**507** Insufficient Storage](https://httpstatuses.com/507)
* [**508** Loop Detected](https://httpstatuses.com/508)
* [**510** Not Extended](https://httpstatuses.com/510)
* [**511** Network Authentication Required](https://httpstatuses.com/511)
* [**599** Network Connect Timeout Error](https://httpstatuses.com/599)