

## HTTP Version History

HTTP (Hypertext Transfer Protocol) is the underlying protocol of the World Wide Web. Tim Berners-Lee and his team developed this in between 1989-1991, HTTP has seen frequent updates, keeping its simplicity and further updating flexibility. HTTP has evolved from the first phase of file exchange, to the modern dimension of the Internet, now carrying high resolution images, videos.



### HTTP 0.9: The One-Line Protocol

The initial versions of HTTP had no version number it was later called 0.9 to differentiate it from the upcoming versions. HTTP/0.9 it was extremely simple requests consist of a single line and start with the only GET was the possible method. The response from it was simple too, it only consisted of the file itself. There were no HTTP headers, here only HTML files could be transmitted. There were no status or error codes in case of a problem. An error was sent as a HTML file with the description of the problem contained in it.

### HTTP 1.0: Building extensibility

Versioning information was sent within each request. A status code line was also sent at the beginning of the response, allowing the browser itself to understand the success or failure of the request. The notion of HTTP headers had been introduced, both for the requests and the responses which allowed metadata to be transmitted and making the protocol extremely flexible and extensible. The HTTP headers added the ability to transmit other documents than plain HTML files with the help of content-type.

### HTTP 1.1: The standardized protocol

The different versions of HTTP 1.0 were chaotic and since 1995 before the publication of HTTP 1.0 document, proper standardization was in progress. The first standardized version of HTTP, HTTP 1.1 was published in early 1997 only a few months after HTTP 1.0 was released.

HTTP 1.1 clarified ambiguities and introduced numerous improvements to the Protocol:

- A connection can be reused, saving the time to reopen it numerous times to display the resources embedded into the single original document retrieved.
- Pipelining has been added, allowing to send a second request before the answer for the first one is fully transmitted, lowering the latency of the communication.
- Chunked responses are now also supported.
- Additional cache control mechanisms have been introduced.
- Content negotiation, including language, encoding, or type, has been introduced, and allows a client and a server to agree on the most adequate content to exchange.
- The `Host` header gives the ability to host different domains at the same IP address.

## **HTTP 2.0: A protocol for greater performance**

Web pages over the years have become much more complex. The number of media displayed, the number of scripts adding interactivity has also been increased. HTTP 1.1 connections need requests sent in the correct order. Theoretically, several parallel connections could be used bringing considerable overhead and complexity. In 2010s Google demonstrated an alternative way of exchanging data between client and server, by implementing an experimental protocol called SPDY. SPDY had an increase in responsiveness, and solving the problem of duplication of data transmitted, this also served as the foundations of the HTTP 2.0 protocol.

The HTTP.02 protocol has several prime differences from the HTTP/1.1 version:

- It is a binary protocol rather than text.
- It is a multiplexed protocol. Parallel requests can be handled over the same connection.
- It compresses headers. This removes duplication and overhead of data transmitted.
- It allows server push.

HTTP 2.0 was officially standardized in May 2015. By July 2016, 8.7% of all Web sites were already using it, representing more than 68% of all requests. High-traffic Web sites showed the most rapid adoption.

## **HTTP 3**

The next major version of HTTP/3 will use QUIC instead TCP/TLS for the transport layer portion.