

Method	Description
GET	Read a Web page
HEAD	Read a Web page's header
POST	Append to a Web page
PUT	Store a Web page
DELETE	Remove the Web page
TRACE	Echo the incoming request
CONNECT	Connect through a proxy
OPTIONS	Query options for a page

Figure 7-37. The built-in HTTP request methods.

Tanenbaum, A. and Wetherall, D., "Computer Networks," 5th Edition, Prentice Hall

Header	Type	Contents
User-Agent	Request	Information about the browser and its platform
Accept	Request	The type of pages the client can handle
Accept-Charset	Request	The character sets that are acceptable to the client
Accept-Encoding	Request	The page encodings the client can handle
Accept-Language	Request	The natural languages the client can handle
If-Modified-Since	Request	Time and date to check freshness
If-None-Match	Request	Previously sent tags to check freshness
Host	Request	The server's DNS name
Authorization	Request	A list of the client's credentials
Referer	Request	The previous URL from which the request came
Cookie	Request	Previously set cookie sent back to the server
Set-Cookie	Response	Cookie for the client to store
Server	Response	Information about the server
Content-Encoding	Response	How the content is encoded (e.g., <i>gzip</i>)
Content-Language	Response	The natural language used in the page
Content-Length	Response	The page's length in bytes
Content-Type	Response	The page's MIME type
Content-Range	Response	Identifies a portion of the page's content
Last-Modified	Response	Time and date the page was last changed
Expires	Response	Time and date when the page stops being valid
Location	Response	Tells the client where to send its request
Accept-Ranges	Response	Indicates the server will accept byte range requests
Date	Both	Date and time the message was sent
Range	Both	Identifies a portion of a page
Cache-Control	Both	Directives for how to treat caches
ETag	Both	Tag for the contents of the page
Upgrade	Both	The protocol the sender wants to switch to

Figure 7-39. Some HTTP message headers. Tanenbaum, A. and Wetherall, D., "Computer Networks," 5th Edition, Prentice Hall

HTTP connections

non-persistent HTTP

- at most one object sent over TCP connection
- Only one HTTP request and response over the TCP connection
 - connection then closed
- downloading multiple objects requires multiple connections

persistent HTTP

- multiple objects can be sent over single TCP connection

Serial TCP connections

- Multiple TCP connections established one after the other

pipelined

- HTTP requests can be made back to back without waiting for replies to pending requests.

Parallel TCP Connections

- multiple parallel TCP connections
- each TCP connection = 1 HTTP Request & 1 HTTP response

Suppose within your Web browser you click on a link to obtain a Web page. Further suppose that the Web page associated with the link contains exactly one object, consisting of a small amount of HTML text. Let RTT_0 denote the RTT between the local host and the server containing the object. Assuming zero transmission time of the object, how much time elapses from when the client clicks on the link until the client receives the object? Now, suppose the HTML file references eight very small objects on the same server. Neglecting transmission times, how much time elapses with

- a. Non-persistent HTTP with no parallel TCP connections?
- b. Non-persistent HTTP with the browser configured for 5 parallel connections?
- c. Persistent HTTP?