Hypertext Markup Language (HTTP)

* application layer communication protocol used to access resources (hypertext/hypermedia) on the www.
* Tim Berners Lee at CERN in 1989
* Jointly developed by the W3C (World wide web consortium) and the IETF (Internet Engineering Task Force)

Protocol

* Standard way of addressing
* Set of rules need to be followed

HTTP Resource addressing

HTTP resources are identified using URL or more specifically HTTP URL’s

Authority

Path – to resource (resolved relative document root on the server)

Many refer to a static or dynamic

Query – typically provided as key value pairs with ampersand (&) and separators between key/value pairs

-may be URL encoded

HTTP request message

Request line

Message Headers (general, request, and/or entity headers)

Get – most common used method

* It is used to request from the server the retrieval of the source identified by the request URI; the retrieved resource is returned in the message body as an entity.

Head – identical to get, except the message body is not included in the response

Post

Put –create the state of target resource

Options – request information about the communication options available for the target resource

Trace – request a remote, application level loop-back of the request message

-typically used for testing/diagnostics of the request/response chain

Connect – request the establishment of a tunnel to the destination origin server

Commonly used to create an end-to-end virtual connection, through 1 or more proxies, which can be secured using TLS

Delete – Request the server to delete the resource identified by the request URI

**HTTP SAFE METHODS**

* GET, HEAD, OPTIONS, TRACE
* Read only
* Client do not request and does not expect any state change on the origin server as of result applying the method to a target resource

**HTTP IDEMPOTENT METHODS**

* GET, HEAD, PUT, DELETE, OPTIONS, TRACE
* Effect on the server of multiple identical requests with the method is the same effect of a single such request

**Cacheable methods**

* Indicates that the response to a method is allowed to be stored for future reuse
* GET,HEAD,POST

**HTTP Extensions Web Distributed Authoring and Versioning (WebDAV)**

* PROPFIND, PROPPATCH, MKCOL, COPY, MOVE, LOCK, UNLOCK

**HTTP STATUS CODES**

* *Informational (1xx)*
* 100 Continue
* 101 Switching Protocols
* *Success (2xx)*
* 200 OK
* 201 Created
* 202 Accepted
* 203 Non-Authoritative Information
* 204 No Content
* 205 Reset Content
* 206 Partial Content
* *Redirection (3xx)*
* 300 Multiple Choices
* 301 Moved Permanently
* 302 Found
* 303 See Other
* 304 Not Modified
* 305 Use Proxy
* 306 (unused)
* Redirect
* *Client Error (4xx)*
* 400 Bad Request
* 401 Unauthorized
* 402 Payment Required
* 403 Forbidden
* 404 Not Found
* 405 Methods not Allowed
* 406 Not Acceptable
* 407 Proxy Authentication Required
* 408 Request Timeout
* 409 Conflict
* 410 Gone
* 411 Length Required
* 412 Precondition Failed
* 413 Request Entity Too Large
* 414 Request-URI Too Long
* 415 Unsupported Media Type
* 416 Request Range Not Satisfiable
* 417 Expectation Failed
* *Server Error (5xx)*
* 500 Internal Server Error
* 501 Not Implemented
* 502 Bad Gateway
* 503 Service Unavailable
* 504 Gateway Timeout
* 505 HTTP Version Not Supported

**HTTP Message Headers**

* *General Header Fields –* these can be found both in client and server
* Cache-Control
* Connection
* Date
* Pragma
* Trailer
* Transfer-encoding
* Upgrade
* Via
* Warning
* *Request Header Fields –* these can only be used by the client
* Accept
* Accept-charset
* Accept-encoding
* Authorization
* Expect
* From
* Host
* If-Match
* If-Modified-Since
* If-None-Match
* If-Range
* If-Unmodified-Since
* Max-Forward
* Proxy-Authorization
* Range
* Referer
* User-Agent
* *Response Header Fields –* these can only be used by the server
* Accept-Range
* Age
* E-Tag
* Location
* Proxy-Authenticate
* Retry-After
* Server
* Vary
* WWW-Authenticate
* *Entity Header Fields –* these can appear both in client and server
* Allow
* Content-encoding
* Content-language
* Content-length
* Content-location
* Content-MDS
* Content-range
* Content-type
* Expires
* Last Modified