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Hypertext Transfer Protocol -- HTTP/1.0

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Abstract

The Hypertext Transfer Protocol (HTTP) is an application-level protocol with the lightness and speed necessary for distributed, collaborative, hypermedia information systems. It is a generic, stateless, object-oriented protocol which can be used for many tasks, such as name servers and distributed object management systems, through extension of its request methods (commands). A feature of HTTP is the typing of data representation, allowing systems to be built independently of the data being transferred.

HTTP has been in use by the World-Wide Web global information initiative since 1990. This specification reflects common usage of the protocol referred to as "HTTP/1.0".

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1. Introduction

1.1 Purpose

The Hypertext Transfer Protocol (HTTP) is an application-level protocol with the lightness and speed necessary for distributed, collaborative, hypermedia information systems. HTTP has been in use by the World-Wide Web global information initiative since 1990. This specification reflects common usage of the protocol referred

to as "HTTP/1.0". This specification describes the features that seem to be consistently implemented in most HTTP/1.0 clients and servers. The specification is split into two sections. Those features of HTTP for which implementations are usually consistent are described in the main body of this document. Those features which have few or inconsistent implementations are listed in Appendix D.

Practical information systems require more functionality than simple retrieval, including search, front-end update, and annotation. HTTP allows an open-ended set of methods to be used to indicate the purpose of a request. It builds on the discipline of reference provided by the Uniform Resource Identifier (URI) [2], as a location (URL) [4] or name (URN) [16], for indicating the resource on which a method is to be applied. Messages are passed in a format similar to that used by Internet Mail [7] and the Multipurpose Internet Mail Extensions (MIME) [5].

HTTP is also used as a generic protocol for communication between user agents and proxies/gateways to other Internet protocols, such as SMTP [12], NNTP [11], FTP [14], Gopher [1], and WAIS [8], allowing basic hypermedia access to resources available from diverse applications and simplifying the implementation of user agents.

1.2 Terminology

This specification uses a number of terms to refer to the roles played by participants in, and objects of, the HTTP communication.

connection

> A transport layer virtual circuit established between two application programs for the purpose of communication.

message

> The basic unit of HTTP communication, consisting of a structured sequence of octets matching the syntax defined in Section 4 and transmitted via the connection.

request

> An HTTP request message (as defined in Section 5).

response

> An HTTP response message (as defined in Section 6).

resource

> A network data object or service which can be identified by a URI (Section 3.2).

entity

> A particular representation or rendition of a data resource, or reply from a service resource, that may be enclosed within a request or response message. An entity consists of metainformation in the form of entity headers and content in the form of an entity body.

client

An application program that establishes connections for the purpose of sending requests.

user agent

The client which initiates a request. These are often browsers, editors, spiders (web-traversing robots), or other end user tools.

server

An application program that accepts connections in order to service requests by sending back responses.

origin server

The server on which a given resource resides or is to be created.

proxy

An intermediary program which acts as both a server and a client for the purpose of making requests on behalf of other clients. Requests are serviced internally or by passing them, with possible translation, on to other servers. A proxy must interpret and, if necessary, rewrite a request message before forwarding it. Proxies are often used as client-side portals through network firewalls and as helper applications for handling requests via protocols not implemented by the user agent.

gateway

A server which acts as an intermediary for some other server. Unlike a proxy, a gateway receives requests as if it were the origin server for the requested resource; the requesting client may not be aware that it is communicating with a gateway. Gateways are often used as server-side portals through network firewalls and as protocol translators for access to resources stored on non-HTTP systems.

tunnel

A tunnel is an intermediary program which is acting as a blind relay between two connections. Once active, a tunnel is not considered a party to the HTTP communication, though the tunnel may have been initiated by an HTTP request. The tunnel ceases to exist when both ends of the relayed connections are closed. Tunnels are used when a portal is necessary and the intermediary cannot, or should not, interpret the relayed communication.

cache

A program's local store of response messages and the subsystem that controls its message storage, retrieval, and deletion. A cache stores cachable responses in order to reduce the response time and network bandwidth consumption on future, equivalent requests. Any client or server may include a cache, though a cache cannot be used by a server while it is acting as a tunnel

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