

HyperText Transport Protocol

The HTTP protocol is a request/response protocol used by the World Wide Web. A client sends a request to the server and the server sends a reply. HTTP is an application layer protocol that is built on top of TCP/IP. The protocol sends requests and responses in ASCII characters that can easily be read. The request is always terminated by a blank line. The format of the request sent by a client browser (such as Netscape or Internet Explorer) to a web server is:

```
<Method>      <Request-URI>      <HTTP-Version>      <Request  options>
CRLF
CRLF
```

An example is:

```
GET /mypage.html HTTP/1.1;
HOST: williams.comp.ncat.edu;
;
```

This example requests the server to send the web page, mypage.html, to the client's browser. The browser has indicated that it is using version 1.0 of the protocol. Note that the request is terminated by two end of line characters(;;).

The HTTP methods are:

OPTIONS	Request the available server options.
GET	Get a file from the server.
HEAD	Get information about a file from the server.
POST	Send information to the server.
PUT	Send a file to be stored on the server.
DELETE	Delete a file on the server.
TRACE	invoke a loop-back of the request message.

The server responds with a status line, including the message's protocol version and a success or error code and possibly message content.

```
HTTP/1.1 <status code> <reason>;
<response options>;
;
<file contents>
```

An example response from a server could be:

```
HTTP/1.1 200 OK
Date: Sun, 26 Nov 2000 23:48:00 GMT
Server: Apache/1.3.6 (Win32)
Last-Modified: Fri, 17 Nov 2000 12:51:44 GMT
ETag: "0-124b-3a1529e0"
Accept-Ranges: bytes
Content-Length: 4683
Connection: close
Content-Type: text/html

<html>
<head> etc.
```

Some of the status codes returned by the server are:

1xx: Informational Request received, continuing process
2xx: Success The action was successfully received, understood, and accepted
200 OK
3xx: Redirection Further action must be taken in order to complete the request
301 Moved Permanently
304 Not Modified
4xx: Client Error The request contains bad syntax or cannot be fulfilled
400 Bad Request
401 Unauthorized
402 Payment Required
403 Forbidden
404 Not Found
410 Gone
5xx: Server Error The server failed to fulfill an apparently valid request
500 Internal Server Error

The usual operation for getting a web page from a server under HTTP/1.0 is:

Create a socket.

Connect to the server at port 80.

Send a GET request to the server for the desired file.

Send a header

describing the file.

Send the

contents of the file.

Close the

connection.

For each graphic referenced {

 Create a socket.

 Connect to the server at port 80.

 Send a GET request to the server for the graphic file.