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# HTTP Server

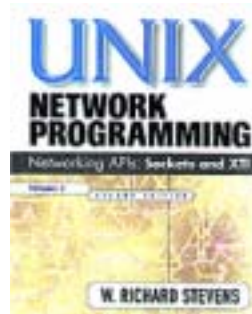
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2005/03/30

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# Reference

- W. Richard Stevens, “Unix Network Programming 2/e Volume 1” ,1998
- James F. Kurose and Keith W. Ross, "Computer Networks: A Top-Down Approach Featuring the Internet 3/e“, 2002.
- IETF RFC 2616,“Hypertext Transfer Protocol -- HTTP/1.1 “



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# HTTP connections

## Nonpersistent HTTP

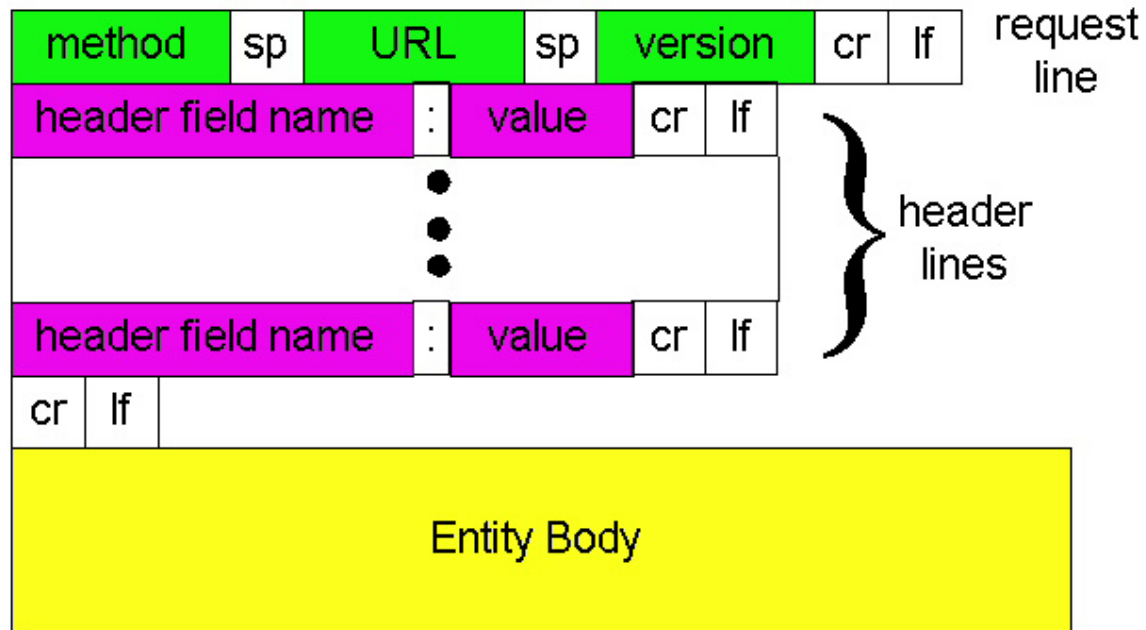
- At most one object is sent over a TCP connection.
- HTTP/1.0 uses nonpersistent HTTP

## Persistent HTTP

- Multiple objects can be sent over single TCP connection between client and server.
  - HTTP/1.1 uses persistent connections in default mode
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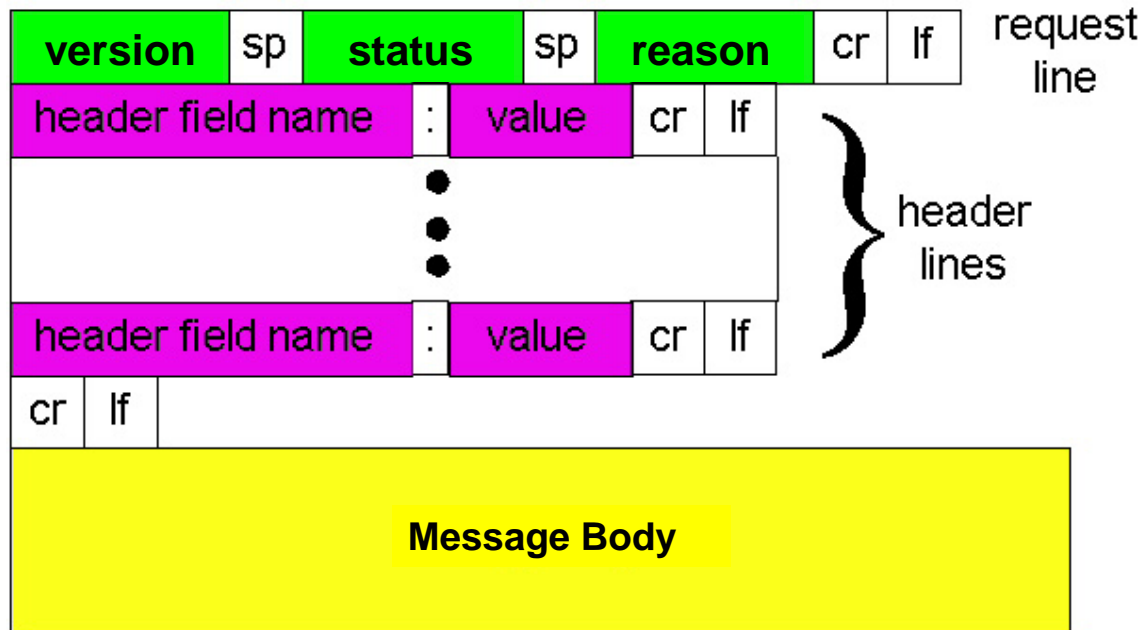
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# HTTP Request Message Format



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# HTTP Response Message Format



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# Message Format Example

- Request message

```
GET /index.html HTTP/1.1
Connection: close
User-agent: Mozilla/4.0
Accept-language: fr
```

- Response message

```
HTTP/1.1 200 OK
Connection: close
Date: Thu, 06 Aug 1998 12:00:15 GMT
Last-Modified: Mon, 22 Jun 1998 09:23:24
Content-Length: 6821
Content-Type: text/html

(data data)
```

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## HW2:HTTP Server

- You have to implement a simple HTTP Server with Persistent and Non-Persistent functions
  - In request message
    - Connection: close
      - Means non-persistent connection
    - Connection: Keep-Alive
      - Means persistent connection
      - Server should keep the connection alive a default time(10s) and send back the Keep-Alive header
      - Ex. Keep-Alive: timeout=10, max=100
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# HW2:HTTP Server

- URL in request line
    - Filename is related to the working directory
      - Ex. ./index.htm means to get ./index.htm
    - Default is to get index.html or index.htm
      - Ex. / means to get ./index.html or ./index.htm
    - No need to support directory, but is encouraged
    - If file doesn't exist, reply 404 not found.
  - In the response message
    - Connection, Date, Content-Length, Content-Type, Last-Modified should be supported
    - Keep-Alive is optional (depends on Connection)
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# HW2:HTTP Server

- Possible value of the header
    - ❑ Connection
      - close, Keep-Alive
    - ❑ Date, Last-Modified
      - Thu, 06 Aug 1998 12:00:15 GMT
    - ❑ Content-Length
      - file size
    - ❑ Content-Type
      - text/html, image/jpg (only have to support these)
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# HW2:HTTP Server

- HTTP Server execution format

```
HttpServer server_port
```

- Your program must be gcc 3.3.1 compatible
- Name your program in this way
  - b91902xxx\_s.cc for HTTP Server (suffix may be c, cc, cpp)
- Make your program as a tarball

```
tar zcvf b91902xxx_hw2.tar.gz b91902xxx_s.cc
```

- Email the tarball to [network\\_hw@voip.csie.ntu.edu.tw](mailto:network_hw@voip.csie.ntu.edu.tw)
    - Subject:[network hw2]b91902xxx name
  - Due after four weeks (4/27 PM2:20)
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# Something Useful

- IE, Mozilla, ..
  - Ethereal (<http://www.ethereal.com>)
  - String related function
    - strcmp(), strchr(), strtok(), ...
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