Lab 1 - Wireshark

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1. The Basic HTTP GET/response interaction

1.1 Is your browser running HTTP version 1.0 or 1.1? What version of HTTP is the server running?

The browser is running HTTP 1.1. This can be seen in the field Request Version: HTTP/1.1. Red color in appendix 1.

1.2 What languages (if any) does your browser indicate that it can accept to the server? In the captured session, what other information (if any) does the browser provide the server with regarding the user/browser?

The accepted language is en-us which can be seen in field Accept-Language. The browser also provides information on accepted file formats, accepted encoding, character sets, keep-alive time and connection type. Blue color in appendix 1.

1.3 What is the IP address of your computer? Of the gaia.cs.umass.edu server?

Our IP address is 192.168.1.102 (source) and the gaia server has 128.119.245.12 (destination) in the GET request. Green color in appendix 1.

1.4 What is the status code returned from the server to your browser?

The response code is 200. Marked in yellow color in appendix 2.

1.5 When was the HTML file that you are retrieving last modified at the server?

It was last modified tue, 23 september 2003 at 05:29:00 GMT. Marked in red color in appendix 2.

1.6 How many bytes of content are being returned to your browser?

The number of bytes returned is 73. Marked in blue color in appendix 2.

1.7 By inspecting the raw data in the "packet bytes" pane, do you see any http headers within the data that are not displayed in the "packet details" pane? If so, name one.

GET /favicon.ico with response 404 not found.

2. The HTTP CONDITIONAL GET/response interaction

2.1 Inspect the contents of the first HTTP GET request from your browser to the server. Do you see an "IF-MODIFIED-SINCE" line in the HTTP GET?

No there won't be one, since the cache was cleared. Data in Appendix 3.

2.2 Inspect the contents of the server response. Did the server explicitly return the contents of the file? How can you tell?

The http response code was 200 and the content-length was 371 bytes which would indicate that the server responded with a file. Marked in green color in Appendix 4.

2.3 Now inspect the contents of the second HTTP GET request from your browser to the server. Do you see an "IF-MODIFIED-SINCE:" line in the HTTP GET? If so, what information follows the "IF-MODIFIED-SINCE:" header?

Yes there exists a modified since header since the page has been cached in the browser. The header includes the date that the current file was last modified. Marked with red in Appendix 5.

2.4 What is the HTTP status code and phrase returned from the server in response to this second HTTP GET? Did the server explicitly return the contents of the file? Explain.

The status code of the response is 304 "not modified" which means that the server encourages the browser to use the cached file. Marked with red color in appendix 6.

2.5 Discussion

Since we cleared the browser cache at the beginning of the exercise the browser had to download the file with the first get request. The server responded and provided the file for use. When a second attempt to access the page occured the file had been cached in the browser already. So the browser asked the server if the cached file was "new enough" to be used. The

server responded and told the browser that no modifications had been carried out in between. This made the browser use the cached file instead. Reducing the overall communication overhead.

3. Retrieving Long Documents

3.1 How many HTTP GET request messages were sent by your browser?

Only one get request was sent. Appendix 7.

3.2 How many data-containing TCP segments were needed to carry the single HTTP response?

The HTTP response was reassembled from 4 TCP segments. Marked in red color in appendix 8.

3.3 What is the status code and phrase associated with the response to the HTTP GET request?

Status code 200 with phrase OK. Marked in blue color in appendix 8.

3.4 Is there any HTTP header information in the transmitted data associated with TCP segmentation? For this question you may want to think about at what layer each protocol operates, and how the protocols at the different layers interoperate.

No information about the actual segmentation of the request but there is information about the request length. Marked in green in appendix 8.

3.5 Discussion

The layered design approach allows for high level protocols to not care about segmentation and packaging of messages. This allows the HTTP protocol to use the same communication model even if messages are long. Long messages and segmentation of messages will be handled by lower level layers.

4. HTML Documents with Embedded Objects

4.1 How many HTTP GET request messages were sent by your browser? To which Internet addresses were these GET requests sent?

Three different get requests were sent to ip addresses 128.119.245.12, Dst: 134.241.6.82 and Dst: 165.193.123.218. Marked in red color in appendix 9.

4.2 Can you tell whether your browser downloaded the two images serially, or whether they were downloaded from the two web sites in parallel? Explain.

They were downloaded in parallel since the get requests for the images are sent before a response has arrived.

4.3 Discussion

It seems as the browser can send HTTP requests in parallel to generate a web page faster. This seems like a good optimization since a web page could be considered “embarrassingly parallel”.

5. HTTP Authentication

5.1 Discussion

When the first get request is sent the server responds with 401 authorization required. Then the browser resend a get request with the authorization provided and the server responds with an 200 ok code and the file requested.

6. Preparation questions for Assignment 2

6.1 What does the "Connection: close" and "Connection: Keep-alive" header field imply in HTTP protocol? When should one be used over the other?

Connection close are specified when the server wants to force closure of the connection. Connection keep-alive can be used to have a persistent connection so that requests can be made again without opening up a second connection.

Appendix 1 - Task 1 first get request

No. Time Source Destination Protocol Info
10 4.694850 192.168.1.102 128.119.245.12 HTTP GET /ethereal-labs/lab2-1.html HTTP/1.1

Frame 10: 555 bytes on wire (4440 bits), 555 bytes captured (4440 bits)
Ethernet II, Src: DellComp_4f:36:23 (00:08:74:4f:36:23), Dst: LinksysG_da:af:73 (00:06:25:da:af:73)
Internet Protocol, Src: 192.168.1.102 (192.168.1.102), Dst: 128.119.245.12 (128.119.245.12)
Transmission Control Protocol, Src Port: unikeypro (4127), Dst Port: http (80), Seq: 1, Ack: 1, Len: 501
Hypertext Transfer Protocol
GET /ethereal-labs/lab2-1.html HTTP/1.1\r\n
[Expert Info (Chat/Sequence): GET /ethereal-labs/lab2-1.html HTTP/1.1\r\n]
[Message: GET /ethereal-labs/lab2-1.html HTTP/1.1\r\n]
[Severity level: Chat]
[Group: Sequence]
Request Method: GET
Request URI: /ethereal-labs/lab2-1.html
Request Version: HTTP/1.1
Host: gaia.cs.umass.edu\r\n
User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.0.2) Gecko/20021120 Netscape/7.01\r\n
Accept: text/xml,application/xml,application/xhtml+xml,text/html;q=0.9,text/plain;q=0.8,video/x-mng,image/png,image/jpeg,image/gif;q=0.2,text/css,*/*;q=0.1\r\n
Accept-Language: en-us, en;q=0.50\r\n
Accept-Encoding: gzip, deflate, compress;q=0.9\r\n
Accept-Charset: ISO-8859-1, utf-8;q=0.66, *;q=0.66\r\n
Keep-Alive: 300\r\n
Connection: keep-alive\r\n
\r\n

Appendix 2 - Task 1 server response

No. Time Source Destination Protocol Info
12 4.718993 128.119.245.12 192.168.1.102 HTTP HTTP/1.1 200 OK (text/html)

Frame 12: 439 bytes on wire (3512 bits), 439 bytes captured (3512 bits)
Ethernet II, Src: LinksysG_da:af:73 (00:06:25:da:af:73), Dst: DellComp_4f:36:23 (00:08:74:4f:36:23)
Internet Protocol, Src: 128.119.245.12 (128.119.245.12), Dst: 192.168.1.102 (192.168.1.102)
Transmission Control Protocol, Src Port: http (80), Dst Port: unikeypro (4127), Seq: 1, Ack: 502, Len: 385
Hypertext Transfer Protocol
HTTP/1.1 200 OK\r\n
[Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]
[Message: HTTP/1.1 200 OK\r\n]
[Severity level: Chat]
[Group: Sequence]
Request Version: HTTP/1.1
Response Code: 200
Date: Tue, 23 Sep 2003 05:29:50 GMT\r\n
Server: Apache/2.0.40 (Red Hat Linux)\r\n
Last-Modified: Tue, 23 Sep 2003 05:29:00 GMT\r\n
ETag: "1bfed-49-79d5bf00"\r\n
Accept-Ranges: bytes\r\n
Content-Length: 73\r\n
Keep-Alive: timeout=10, max=100\r\n
Connection: Keep-Alive\r\n
Content-Type: text/html; charset=ISO-8859-1\r\n
\r\n
Line-based text data: text/html

Appendix 3 - Task 2 first get request

No. Time Source Destination Protocol Info
8 2.331268 192.168.1.102 128.119.245.12 HTTP GET /ethereal-labs/lab2-2.html HTTP/1.1

Frame 8: 555 bytes on wire (4440 bits), 555 bytes captured (4440 bits)
Ethernet II, Src: DellComp_4f:36:23 (00:08:74:4f:36:23), Dst: LinksysG_da:af:73 (00:06:25:da:af:73)
Internet Protocol, Src: 192.168.1.102 (192.168.1.102), Dst: 128.119.245.12 (128.119.245.12)
Transmission Control Protocol, Src Port: 4247 (4247), Dst Port: http (80), Seq: 1, Ack: 1, Len: 501
Hypertext Transfer Protocol
GET /ethereal-labs/lab2-2.html HTTP/1.1\r\n
[Expert Info (Chat/Sequence): GET /ethereal-labs/lab2-2.html HTTP/1.1\r\n]
Request Method: GET
Request URI: /ethereal-labs/lab2-2.html
Request Version: HTTP/1.1
Host: gaia.cs.umass.edu\r\n
User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.0.2) Gecko/20021120 Netscape/7.01\r\n
Accept: text/xml,application/xml,application/xhtml+xml,text/html;q=0.9,text/plain;q=0.8,video/x-mng,image/png,image/jpeg,image/gif;q=0.2,text/css,*/*;q=0.1\r\n
Accept-Language: en-us, en;q=0.50\r\n
Accept-Encoding: gzip, deflate, compress;q=0.9\r\n
Accept-Charset: ISO-8859-1, utf-8;q=0.66, *;q=0.66\r\n
Keep-Alive: 300\r\n
Connection: keep-alive\r\n
\r\n

Appendix 4 - Task 2 first server response

No. Time Source Destination Protocol Info
10 2.357902 128.119.245.12 192.168.1.102 HTTP HTTP/1.1 200 OK (text/html)

Frame 10: 739 bytes on wire (5912 bits), 739 bytes captured (5912 bits)
Ethernet II, Src: LinksysG_da:af:73 (00:06:25:da:af:73), Dst: DellComp_4f:36:23 (00:08:74:4f:36:23)
Internet Protocol, Src: 128.119.245.12 (128.119.245.12), Dst: 192.168.1.102 (192.168.1.102)
Transmission Control Protocol, Src Port: http (80), Dst Port: 4247 (4247), Seq: 1, Ack: 502, Len: 685
Hypertext Transfer Protocol
HTTP/1.1 200 OK\r\n
[Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]
[Message: HTTP/1.1 200 OK\r\n]
[Severity level: Chat]
[Group: Sequence]
Request Version: HTTP/1.1
Response Code: 200
Date: Tue, 23 Sep 2003 05:35:50 GMT\r\n
Server: Apache/2.0.40 (Red Hat Linux)\r\n
Last-Modified: Tue, 23 Sep 2003 05:35:00 GMT\r\n
ETag: "1bfef-173-8f4ae900"\r\n
Accept-Ranges: bytes\r\n
Content-Length: 371\r\n
Keep-Alive: timeout=10, max=100\r\n
Connection: Keep-Alive\r\n
Content-Type: text/html; charset=ISO-8859-1\r\n
\r\n
Line-based text data: text/html

Appendix 5 - Task2 second get request (cached)

No. Time Source Destination Protocol Info
14 5.517390 192.168.1.102 128.119.245.12 HTTP GET /ethereal-labs/lab2-2.html HTTP/1.1

Frame 14: 668 bytes on wire (5344 bits), 668 bytes captured (5344 bits)
Ethernet II, Src: DellComp_4f:36:23 (00:08:74:4f:36:23), Dst: LinksysG_da:af:73 (00:06:25:da:af:73)
Internet Protocol, Src: 192.168.1.102 (192.168.1.102), Dst: 128.119.245.12 (128.119.245.12)
Transmission Control Protocol, Src Port: 4247 (4247), Dst Port: http (80), Seq: 502, Ack: 686, Len: 614
Hypertext Transfer Protocol
GET /ethereal-labs/lab2-2.html HTTP/1.1\r\n
[Expert Info (Chat/Sequence): GET /ethereal-labs/lab2-2.html HTTP/1.1\r\n]
[Message: GET /ethereal-labs/lab2-2.html HTTP/1.1\r\n]
[Severity level: Chat]
[Group: Sequence]
Request Method: GET
Request URI: /ethereal-labs/lab2-2.html
Request Version: HTTP/1.1
Host: gaia.cs.umass.edu\r\n
User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.0.2) Gecko/20021120 Netscape/7.01\r\n
Accept: text/xml,application/xml,application/xhtml+xml,text/html;q=0.9,text/plain;q=0.8,video/x-mng,image/png,image/jpeg,image/gif;q=0.2,text/css,*/*;q=0.1\r\n
Accept-Language: en-us, en;q=0.50\r\n
Accept-Encoding: gzip, deflate, compress;q=0.9\r\n
Accept-Charset: ISO-8859-1, utf-8;q=0.66, *;q=0.66\r\n
Keep-Alive: 300\r\n
Connection: keep-alive\r\n
If-Modified-Since: Tue, 23 Sep 2003 05:35:00 GMT\r\n
If-None-Match: "1bfef-173-8f4ae900"\r\n
Cache-Control: max-age=0\r\n
\r\n

Appendix 6 - Task2 second server response

No. Time Source Destination Protocol Info
15 5.540216 128.119.245.12 192.168.1.102 HTTP HTTP/1.1 304 Not Modified

Frame 15: 243 bytes on wire (1944 bits), 243 bytes captured (1944 bits)
Ethernet II, Src: LinksysG_da:af:73 (00:06:25:da:af:73), Dst: DellComp_4f:36:23 (00:08:74:4f:36:23)
Internet Protocol, Src: 128.119.245.12 (128.119.245.12), Dst: 192.168.1.102 (192.168.1.102)
Transmission Control Protocol, Src Port: http (80), Dst Port: 4247 (4247), Seq: 686, Ack: 1116, Len: 189
Hypertext Transfer Protocol
HTTP/1.1 304 Not Modified\r\n
[Expert Info (Chat/Sequence): HTTP/1.1 304 Not Modified\r\n]
[Message: HTTP/1.1 304 Not Modified\r\n]
[Severity level: Chat]
[Group: Sequence]
Request Version: HTTP/1.1
Response Code: 304
Date: Tue, 23 Sep 2003 05:35:53 GMT\r\n
Server: Apache/2.0.40 (Red Hat Linux)\r\n
Connection: Keep-Alive\r\n
Keep-Alive: timeout=10, max=99\r\n
ETag: "1bfef-173-8f4ae900"\r\n
\r\n

Appendix 7 - Task 3 first get request

No. Time Source Destination Protocol Info
8 4.623732 192.168.1.102 128.119.245.12 HTTP GET /ethereal-labs/lab2-3.html HTTP/1.1

Frame 8: 555 bytes on wire (4440 bits), 555 bytes captured (4440 bits)
Ethernet II, Src: DellComp_4f:36:23 (00:08:74:4f:36:23), Dst: LinksysG_da:af:73 (00:06:25:da:af:73)
Internet Protocol, Src: 192.168.1.102 (192.168.1.102), Dst: 128.119.245.12 (128.119.245.12)
Transmission Control Protocol, Src Port: 4272 (4272), Dst Port: http (80), Seq: 1, Ack: 1, Len: 501
Hypertext Transfer Protocol
GET /ethereal-labs/lab2-3.html HTTP/1.1\r\n
[Expert Info (Chat/Sequence): GET /ethereal-labs/lab2-3.html HTTP/1.1\r\n]
[Message: GET /ethereal-labs/lab2-3.html HTTP/1.1\r\n]
[Severity level: Chat]
[Group: Sequence]
Request Method: GET
Request URI: /ethereal-labs/lab2-3.html
Request Version: HTTP/1.1
Host: gaia.cs.umass.edu\r\n
User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.0.2) Gecko/20021120 Netscape/7.01\r\n
Accept: text/xml,application/xml,application/xhtml+xml,text/html;q=0.9,text/plain;q=0.8,video/x-mng,image/png,image/jpeg,image/gif;q=0.2,text/css,*/*;q=0.1\r\n
Accept-Language: en-us, en;q=0.50\r\n
Accept-Encoding: gzip, deflate, compress;q=0.9\r\n
Accept-Charset: ISO-8859-1, utf-8;q=0.66, *;q=0.66\r\n
Keep-Alive: 300\r\n
Connection: keep-alive\r\n
\r\n

Appendix 8 - Task 3 first server response

No. Time Source Destination Protocol Info
14 4.680920 128.119.245.12 192.168.1.102 HTTP HTTP/1.1 200 OK (text/html)

Frame 14: 490 bytes on wire (3920 bits), 490 bytes captured (3920 bits)
Ethernet II, Src: LinksysG_da:af:73 (00:06:25:da:af:73), Dst: DellComp_4f:36:23 (00:08:74:4f:36:23)
Internet Protocol, Src: 128.119.245.12 (128.119.245.12), Dst: 192.168.1.102 (192.168.1.102)
Transmission Control Protocol, Src Port: http (80), Dst Port: 4272 (4272), Seq: 4381, Ack: 502, Len: 436
[Reassembled TCP Segments (4816 bytes): #10(1460), #11(1460), #13(1460), #14(436)]
    [Frame: 10, payload: 0-1459 (1460 bytes)]
    [Frame: 11, payload: 1460-2919 (1460 bytes)]
    [Frame: 13, payload: 2920-4379 (1460 bytes)]
    [Frame: 14, payload: 4380-4815 (436 bytes)]
    [Reassembled TCP length: 4816]
Hypertext Transfer Protocol
    HTTP/1.1 200 OK\r\n
    [Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]
    [Message: HTTP/1.1 200 OK\r\n]
    [Severity level: Chat]
    [Group: Sequence]
    Request Version: HTTP/1.1
    Response Code: 200
    Date: Tue, 23 Sep 2003 05:37:02 GMT\r\n
    Server: Apache/2.0.40 (Red Hat Linux)\r\n
    Last-Modified: Tue, 23 Sep 2003 05:37:01 GMT\r\n
    ETag: "1bff2-1194-96813940"\r\n
    Accept-Ranges: bytes\r\n
    Content-Length: 4500\r\n
    Keep-Alive: timeout=10, max=100\r\n
    Connection: Keep-Alive\r\n
    Content-Type: text/html; charset=ISO-8859-1\r\n
    \r\n
Line-based text data: text/html

Appendix 9 - Task 4 get requests

No. Time Source Destination Protocol Info
10 7.236929 192.168.1.102 128.119.245.12 HTTP GET /ethereal-labs/lab2-4.html HTTP/1.1

Frame 10: 555 bytes on wire (4440 bits), 555 bytes captured (4440 bits)
Ethernet II, Src: DellComp_4f:36:23 (00:08:74:4f:36:23), Dst: LinksysG_da:af:73 (00:06:25:da:af:73)
Internet Protocol, Src: 192.168.1.102 (192.168.1.102), Dst: 128.119.245.12 (128.119.245.12)
Transmission Control Protocol, Src Port: visicron-vs (4307), Dst Port: http (80), Seq: 1, Ack: 1, Len: 501
Hypertext Transfer Protocol
GET /ethereal-labs/lab2-4.html HTTP/1.1\r\n
[Expert Info (Chat/Sequence): GET /ethereal-labs/lab2-4.html HTTP/1.1\r\n]
[Message: GET /ethereal-labs/lab2-4.html HTTP/1.1\r\n]
[Severity level: Chat]
[Group: Sequence]
Request Method: GET
Request URI: /ethereal-labs/lab2-4.html
Request Version: HTTP/1.1
Host: gaia.cs.umass.edu\r\n
User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.0.2) Gecko/20021120 Netscape/7.01\r\n
Accept: text/xml,application/xml,application/xhtml+xml,text/html;q=0.9,text/plain;q=0.8,video/x-mng,image/png,image/jpeg,image/gif;q=0.2,text/css,*/*;q=0.1\r\n
Accept-Language: en-us, en;q=0.50\r\n
Accept-Encoding: gzip, deflate, compress;q=0.9\r\n
Accept-Charset: ISO-8859-1, utf-8;q=0.66, *;q=0.66\r\n
Keep-Alive: 300\r\n
Connection: keep-alive\r\n
\r\n

No. Time Source Destination Protocol Info
17 7.305485 192.168.1.102 165.193.123.218 HTTP GET /catalog/images/pearson-logo-footer.gif HTTP/1.1

Frame 17: 625 bytes on wire (5000 bits), 625 bytes captured (5000 bits)
Ethernet II, Src: DellComp_4f:36:23 (00:08:74:4f:36:23), Dst: LinksysG_da:af:73 (00:06:25:da:af:73)
Internet Protocol, Src: 192.168.1.102 (192.168.1.102), Dst: 165.193.123.218 (165.193.123.218)

Transmission Control Protocol, Src Port: compx-lockview (4308), Dst Port: http (80), Seq: 1, Ack: 1, Len: 571
Hypertext Transfer Protocol
    GET /catalog/images/pearson-logo-footer.gif HTTP/1.1\r\n
    [Expert Info (Chat/Sequence): GET /catalog/images/pearson-logo-footer.gif HTTP/1.1\r\n]
    [Message: GET /catalog/images/pearson-logo-footer.gif HTTP/1.1\r\n]
    [Severity level: Chat]
    [Group: Sequence]
    Request Method: GET
    Request URI: /catalog/images/pearson-logo-footer.gif
    Request Version: HTTP/1.1
    Host: www.aw-bc.com\r\n
    User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.0.2) Gecko/20021120 Netscape/7.01\r\n
    Accept: text/xml,application/xml,application/xhtml+xml,text/html;q=0.9,text/plain;q=0.8,video/x-mng,image/png,image/jpeg,image/gif;q=0.2,text/css,*/*;q=0.1\r\n
    Accept-Language: en-us, en;q=0.50\r\n
    Accept-Encoding: gzip, deflate, compress;q=0.9\r\n
    Accept-Charset: ISO-8859-1, utf-8;q=0.66, *;q=0.66\r\n
    Keep-Alive: 300\r\n
    Connection: keep-alive\r\n
    Referer: http://gaia.cs.umass.edu/ethereal-labs/lab2-4.html\r\n
    \r\n

No. Time Source Destination Protocol Info
    20 7.308803 192.168.1.102 134.241.6.82 HTTP GET /~kurose/cover.jpg HTTP/1.1

Frame 20: 609 bytes on wire (4872 bits), 609 bytes captured (4872 bits)
Ethernet II, Src: DellComp_4f:36:23 (00:08:74:4f:36:23), Dst: LinksysG_da:af:73 (00:06:25:da:af:73)
Internet Protocol, Src: 192.168.1.102 (192.168.1.102), Dst: 134.241.6.82 (134.241.6.82)
Transmission Control Protocol, Src Port: dserver (4309), Dst Port: http (80), Seq: 1, Ack: 1, Len: 555
Hypertext Transfer Protocol
    GET /~kurose/cover.jpg HTTP/1.1\r\n
    [Expert Info (Chat/Sequence): GET /~kurose/cover.jpg HTTP/1.1\r\n]
    [Message: GET /~kurose/cover.jpg HTTP/1.1\r\n]
    [Severity level: Chat]
    [Group: Sequence]
    Request Method: GET
    Request URI: /~kurose/cover.jpg

Request Version: HTTP/1.1
Host: manic.cs.umass.edu\r\n
User-Agent: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.0.2) Gecko/20021120 Netscape/7.01\r\n
Accept: text/xml,application/xml,application/xhtml+xml,text/html;q=0.9,text/plain;q=0.8,video/x-mng,image/png,image/jpeg,image/gif;q=0.2,text/css,*/*;q=0.1\r\n
Accept-Language: en-us, en;q=0.50\r\n
Accept-Encoding: gzip, deflate, compress;q=0.9\r\n
Accept-Charset: ISO-8859-1, utf-8;q=0.66, *;q=0.66\r\n
Keep-Alive: 300\r\n
Connection: keep-alive\r\n
Referer: http://gaia.cs.umass.edu/ethereal-labs/lab2-4.html\r\n
\r\n