

Question 3

10.4.694850 192.168.1.102 128.119.245.12 HTTP 555 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 Version 4, Src: 192.168.1.102 (192.168.1.102), Dst: 128.119.245.12 (128.119.245.12)

▶ Transmission Control Protocol, Src Port: 4127 (4127), Dst Port: 80 (80), Seq: 1, Ack: 1, Len: 501

▼ Hypertext Transfer Protocol

▶ GET /ethereal-labs/lab2-1.html HTTP/1.1\r\n

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=0.5\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

[Full request URI: http://gaia.cs.umass.edu/ethereal-labs/lab2-1.html]

[HTTP request 1/2]

[Response in frame: 12]

[Next request in frame: 13]

▼ Hypertext Transfer Protocol

▶ HTTP/1.1 200 OK\r\n

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

[HTTP response 1/2]

[Time since request: 0.024143000 seconds]

[Request in frame: 10]

[Next request in frame: 13]

[Next response in frame: 14]

▶ Line-based text data: text/html

1. What is the status code and phrase returned from the server to the client browser
200 OK
2. When was the HTML file that the browser is retrieving last modified at the server? Does the response also contain a DATE header? How are these two fields different?
 - Last modified: Tuesday, 23 Sep 2003, 05:29:00 GMT.
 - It does contain a DATE header.
 - Date header indicates when the resource was first created/originated, ie the time they sent the resource. Last modified shows when it was last edited.
3. Is the connection established between the browser and the server persistent or non-persistent? How can you infer this?
 - It appears to be a persistent connection
 - HTTP/1.1 uses persistent connections as a default. The connection type is also 'keep-alive', indicating a persistent connection.
4. How many bytes of content are being returned to the browser?
 - Content-length: 73
5. What is the data contained inside the HTTP response packet?

▼ Line-based text data: text/html

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<html>\n
```

```
Congratulations. You've downloaded the file lab2-1.html!\n
```

```
</html>\n
```

Question 4

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▶ 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 Version 4, 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: 80 (80), Seq: 1, Ack: 1, Len: 501
▼ Hypertext Transfer Protocol
  ▶ GET /ethereal-labs/lab2-2.html HTTP/1.1\r\n
    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
  [Full request URI: http://gaia.cs.umass.edu/ethereal-labs/lab2-2.html]
  [HTTP request 1/2]
  [Response in frame: 10]
  [Next request in frame: 14]

▶ 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 Version 4, Src: 128.119.245.12 (128.119.245.12), Dst: 192.168.1.102 (192.168.1.102)
▶ Transmission Control Protocol, Src Port: 80 (80), Dst Port: 4247 (4247), Seq: 1, Ack: 502, Len: 685
▼ Hypertext Transfer Protocol
  ▶ HTTP/1.1 200 OK\r\n
    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
  [HTTP response 1/2]
  [Time since request: 0.026634000 seconds]
  [Request in frame: 8]
  [Next request in frame: 14]
  [Next response in frame: 15]

▶ Line-based text data: text/html
```

1. Inspect the contents of the first HTTP GET request from the browser to the server. Do you see an "IF-MODIFIED-SINCE" line in the HTTP GET?
 - no
2. Does the response indicate the last time that the requested file was modified?
 - Yes

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Last-Modified: Tue, 23 Sep 2003 05:35:00 GMT\r\n
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```

3. Now inspect the contents of the second HTTP GET request from the browser to the server. Do you see an "IF-MODIFIED-SINCE:" and "IF-NONE-MATCH" lines in the HTTP GET? If so, what information is contained in these header lines?
 - Yes
 - If modified since: this makes it so that the server will send back requested resource with a 200 success status only if it has been last modified after the given date. If not, the response will be 304 without any body. Since the response was 304, this means the resource was not modified since Tue, 23 Sep 2003 05:35:00 GMT.
 - If not match: Makes it so that the server only sends the requested resource with a success 200 status if it doesn't have an etag matching the given ones (in this case '1bfef-173-8f4ae900'). Since 304 not modified was returned, this means that it did have a matching etag.

```
If-Modified-Since: Tue, 23 Sep 2003 05:35:00 GMT\r\n
If-None-Match: "1bfef-173-8f4ae900"\r\n
```

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.

- It returned a 304 not modified.
- It didn't return the contents of the file because it failed to meet the aforementioned '*if modified since*' and '*if not match*' conditions.

5. What is the value of the Etag field in the 2nd response message and how it is used? Has this value changed since the 1st response message was received?

- The value of the etag was: '*1bfe1-173-8f4ae900*'
- This is used to identify a specific version of the requested resource. This is used to help cache memory/resources so that the server doesn't need to resend a full response if the content hasn't changed. It also prevents simultaneous updates overwriting each other.
- This value has not changed since the 1st response message was received