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1. Is your browser running HTTP version 1.0, 1.1, or 2? What version of HTTP is the server running?

- **Browser HTTP version:** 1.1 (from the request line: `GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1`)
- **Server HTTP version:** 1.1 (from the response line: `HTTP/1.1 200 OK`)

2. What languages (if any) does your browser indicate that it can accept to the server?

- The browser can accept:
 - English (United States) `en-US`
 - English `en`

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

- **Client (your computer) IP address:** 10.0.0.44
- **Server IP address (gaia.cs.umass.edu):**128.119.245.12

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

- Status code: `200 OK` (indicating a successful request)

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

- Last modified: `Sat, 30 Jan 2021 06:59:02 GMT`

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

- Content length: 128 bytes

7. By inspecting the raw data in the packet content window, do you see any headers within the data that are not displayed in the packet-listing window? If so, name one.

- Example: ETag: "80-5ba18a7e1c636"

8. 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?

Example: If-Modified-Since: Sat, 30 Jan 2021 06:59:02 GMT

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

Yes .

Congratulations again! Now you've downloaded the file lab2-2.html.

This file's last modification date will not change. <p>

Thus if you download this multiple times on your browser, a complete copy

will only be sent once by the server due to the inclusion of the
IN-MODIFIED-SINCE

field in your browser's HTTP GET request to the server.

10. 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?

Example: If-Modified-Since: Sat, 30 Jan 2021 06:59:02 GMT

11. 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

HTTP/1.1 304 Not Modified

Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/7.4.14
mod_perl/2.0.11 Perl/v5.16.3

12. How many HTTP GET request messages did your browser send? Which packet number in the trace contains the GET message for the Bill of Rights?

Ans:1,26

13. Which packet number in the trace contains the status code and phrase associated with the response to the HTTP GET request?

Ans:32

14. What is the status code and phrase in the response?

Ans:200 OK

15. How many data-containing TCP segments were needed to carry the single HTTP response and the text of the Bill of Rights?

Ans:4

16. How many HTTP GET request messages did your browser send? To which Internet addresses were these GET requests sent?

Ans:4

Host: gaia.cs.umass.edu

Host: kurose.cslash.net

Host: kurose.cslash.net

Host: r3.o.lencr.org

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

Ans: The images were downloaded serially. The GET for the second image (packet 118 at 3.309s) was sent before the response to the first image (packet 120 at 3.451s) was received.

18. What is the server's response (status code and phrase) in response to the initial HTTP GET message from your browser?

Ans:401 Unauthorized

19. When your browser sends the HTTP GET message for the second time, what new field is included in the HTTP GET message?

Ans:Authorization field

