VILNIUS UNIVERSITY
SIAULIAI ACADEMY

PROGRAMŲ SISTEMOS BACHELOR STUDY PROGRAMME

Software engineering

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Computer Networks

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Laboratory Work Report

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1. The Basic HTTP GET/response interaction

1. *Is your browser running HTTP version 1.0 or 1.1? What version of HTTP is the server running?*
    a. Frame 1758 (GET):

    ```
    GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1
    ```

    b. Frame: 1760 :

    ```
    Info
    HTTP/1.1 200
    ```

    Answer: both use HTTP/1.1

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

    ```
    Accept-Language: uk-UA,uk;q=0.9\r\n
    ```

    Answer: The browser can accept Ukrainian (uk-UA), Ukrainian (uk).

3. *What is the IP address of your computer? Of the gaia.cs.umass.edu server?*
    a. Frame 1758 (GET):

Answer: my pc - 192.168.1.135
server - 128.119.245.12

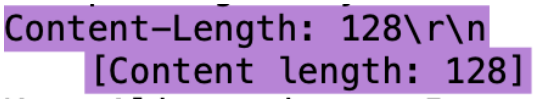
4. *What is the status code returned from the server to your browser?*

Answer: status code: 200, phrase: OK

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

Answer: Tue, 15 Apr 2025 05:59:01 GMT

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



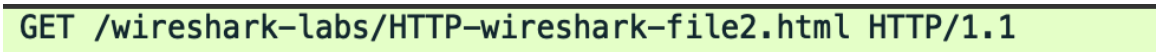
Answer: 128 byes

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.*

Answer: There are no hidden headers, all are displayed.

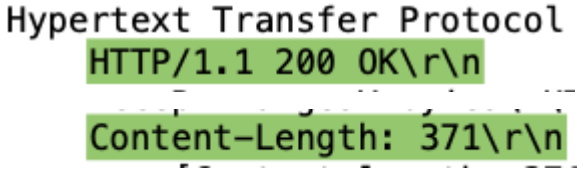
2. The HTTP CONDITIONAL GET/response interaction

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?*



Answer: No, there is no “IF-MODIFIED-SINCE” in the first GET request.

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



Answer: Yes, the server returned the full content of the file. This is indicated by the status code **HTTP/1.1 200 OK** in Frame 137 and the **Content-Length: 371**.

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?*

Answer: No, the second GET request (Frame 150) also doesn’t include an **If-Modified-Since:** line. The request is exactly the same as the first one.

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.*

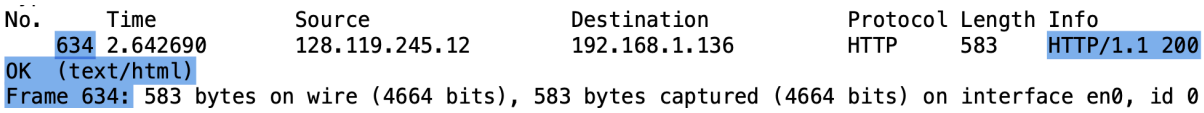
Answer: The status code is again **HTTP/1.1 200 OK** (Frame 178), which means the server returned the file contents again instead of saying "Not Modified". This confirms that the conditional GET did not happen - likely because the browser didn’t send the **If-Modified-Since** header.

3. Retrieving Long Documents

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

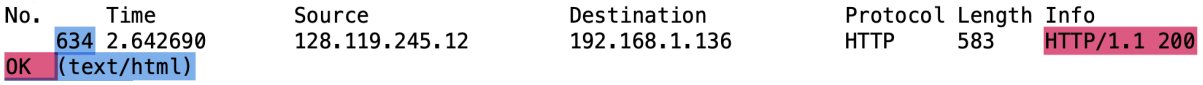
Answer: 1 HTTP GET request message; Frame 556

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



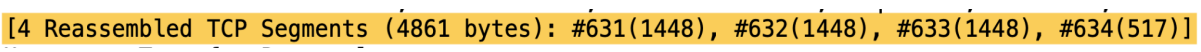
Answer: Frame 634

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



Answer: **HTTP/1.1 200 OK**

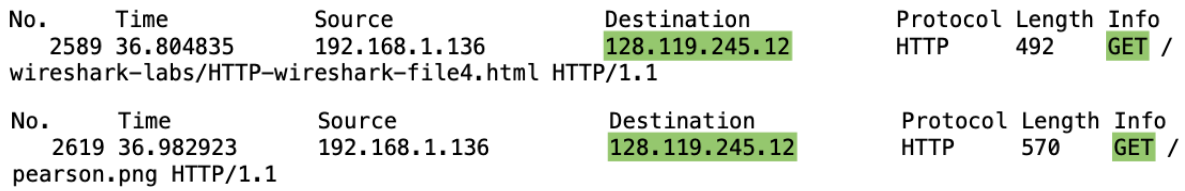
15. *How many data-containing TCP segments were needed to carry the single HTTP response and the text of the Bill of Rights?*

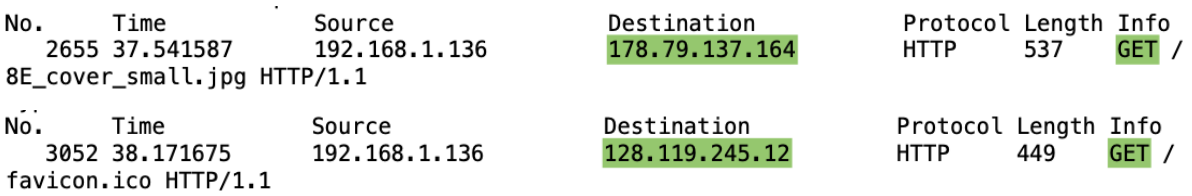


Answer: 4 TCP segments

4. HTML Documents with Embedded Objects

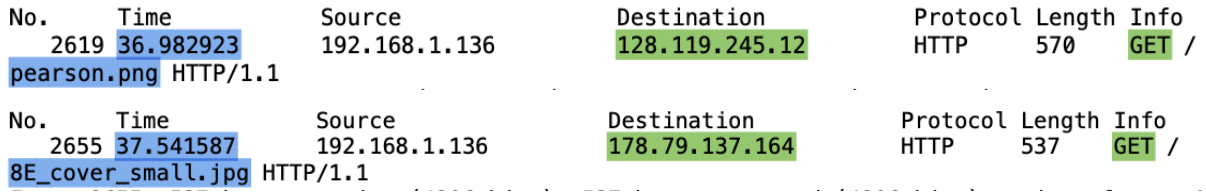
16. *How many HTTP GET request messages did your browser send? To which Internet addresses were these GET requests sent?*





Answer: browser sent 4 HTTP GET request messages. Internet addresses, to which these GET requests were sent, are highlighted.

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.*



Answer: The downloads were serially:

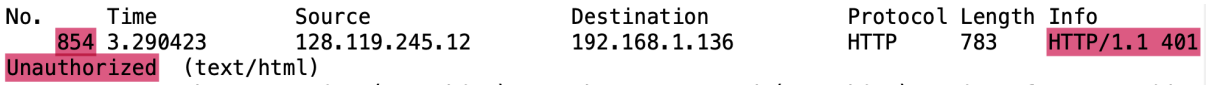
- pearson.png was requested at 36.982923, and the response (HTTP 200) was received at 37.100357.

- 8E_cover_small.jpg was requested later, at 37.541587.

The difference between these requests is about half a second, so they were not downloaded in parallel. The browser first completed one download before starting the next.

5. HTTP Authentication

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



Answer:

- status code: **401**
- phrase: **Unauthorized**

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

```
Authorization: Basic d2lyZXNoYXJrLXN0dWRlbnRzOm5ldHdvcms=\r\n
    Credentials: wireshark-students:network
```

Answer: field "Authorization: Basic"