

## **GS1023 – REDE DE COMPUTADORES**

### **Computer Networking – J. F. Kurose and K. W. Ross – 7th Edition Chapter 2 – Camadas de Aplicação**

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

O navegador está rodando a versão 1.1 do HTTP. O server está rodando a versao 1.1 do HTTP.

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

Accept-Language: pt-BR,pt;q=0.9,en-US;q=0.8,en;q=0.7

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

IP do Computador: 10.14.79.51

IP do Sever: 128.119.245.12

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

200 OK

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

Last-Modified: Thu, 19 May 2022 05:59:02 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.

Na packet-listing window possui apenas linha de estado, diferente do packet content window que possui as demais informações do cabeçalho.

```
43 3.959378 10.14.79.51 128.119.245.12 HTTP 612 GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1
50 4.182942 128.119.245.12 10.14.79.51 HTTP 540 HTTP/1.1 200 OK (text/html)
53 4.250769 10.14.79.51 128.119.245.12 HTTP 558 GET /favicon.ico HTTP/1.1
55 4.817555 128.119.245.12 10.14.79.51 HTTP 538 HTTP/1.1 404 Not Found (text/html)

> Frame 43: 612 bytes on wire (4896 bits), 612 bytes captured (4896 bits) on interface \Device\NPF_{095914B5-BBFC-44AD-ABA3-52F990373487}, id 0
> Ethernet II, Src: Chongqin_11:da:0d (c8:94:02:11:da:0d), Dst: Alcatel_94:c3:cd (94:24:e1:94:c3:cd)
> Internet Protocol Version 4, Src: 10.14.79.51, Dst: 128.119.245.12
> Transmission Control Protocol, Src Port: 55964, Dst Port: 80, Seq: 1, Ack: 1, Len: 558
> Hypertext Transfer Protocol
  > GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n
    Host: gaia.cs.umass.edu\r\n
    Connection: keep-alive\r\n
    Pragma: no-cache\r\n
    Cache-Control: no-cache\r\n
    Upgrade-Insecure-Requests: 1\r\n
    User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/100.0.4896.127 Safari/537.36 OPR/86.0.4363.64\r\n
    Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9\r\n
    Accept-Encoding: gzip, deflate\r\n
    Accept-Language: pt-BR,pt;q=0.9,en-US;q=0.8,en;q=0.7\r\n
    \r\n
    [Full request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file1.html]
    [HTTP request 1/2]
    [Response in frame: 50]
    [Next request in frame: 53]
```

```
50 4.182942 128.119.245.12 10.14.79.51 HTTP 540 HTTP/1.1 200 OK (text/html)
53 4.250769 10.14.79.51 128.119.245.12 HTTP 558 GET /favicon.ico HTTP/1.1
55 4.817555 128.119.245.12 10.14.79.51 HTTP 538 HTTP/1.1 404 Not Found (text/html)

> Frame 50: 540 bytes on wire (4320 bits), 540 bytes captured (4320 bits) on interface \Device\NPF_{095914B5-BBFC-44AD-ABA3-52F990373487}, id 0
> Ethernet II, Src: Alcatel_94:c3:cd (94:24:e1:94:c3:cd), Dst: Chongqin_11:da:0d (c8:94:02:11:da:0d)
> Internet Protocol Version 4, Src: 128.119.245.12, Dst: 10.14.79.51
> Transmission Control Protocol, Src Port: 80, Dst Port: 55964, Seq: 1, Ack: 559, Len: 486
> Hypertext Transfer Protocol
  > HTTP/1.1 200 OK\r\n
    Date: Thu, 19 May 2022 22:29:50 GMT\r\n
    Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/7.4.28 mod_perl/2.0.11 Perl/v5.16.3\r\n
    Last-Modified: Thu, 19 May 2022 05:59:02 GMT\r\n
    ETag: "80-5df5712180083"\r\n
    Accept-Ranges: bytes\r\n
    Content-Length: 128\r\n
    Keep-Alive: timeout=5, max=100\r\n
    Connection: Keep-Alive\r\n
    Content-Type: text/html; charset=UTF-8\r\n
    \r\n
    [Time since request: 0.223564000 seconds]
    [Request in frame: 43]
    [Next request in frame: 53]
```

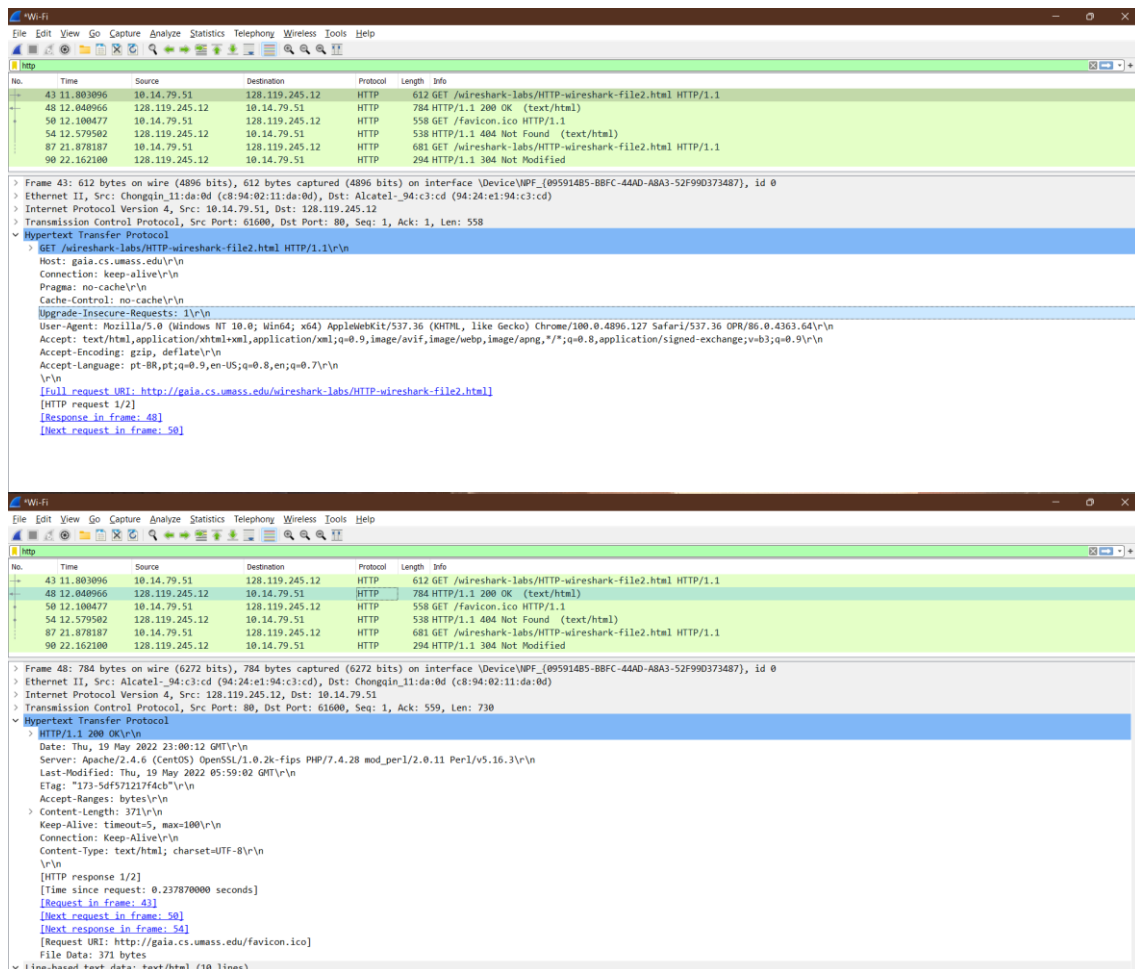
8. Inspect the contents of the first HTTP GET request from your browser to the server. Do you see an “IF-MODIFIED-SINCE” line in the HTTP GET?

Não há a linha “IF-MODIFIED-SINCE” na primeira requisição.

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

Sim, como Podemos ver no print a baixo, os dados da requisição foram recuperados.

```
> Line-based text data: text/html (10 lines)
  \n
  <html>\n
  \n
  Congratulations again! Now you've downloaded the file lab2-2.html. <br>\n
  This file's last modification date will not change. <p>\n
  Thus if you download this multiple times on your browser, a complete copy <br>\n
  will only be sent once by the server due to the inclusion of the IF-MODIFIED-SINCE<br>\n
  field in your browser's HTTP GET request to the server.\n
  \n
  </html>\n
```



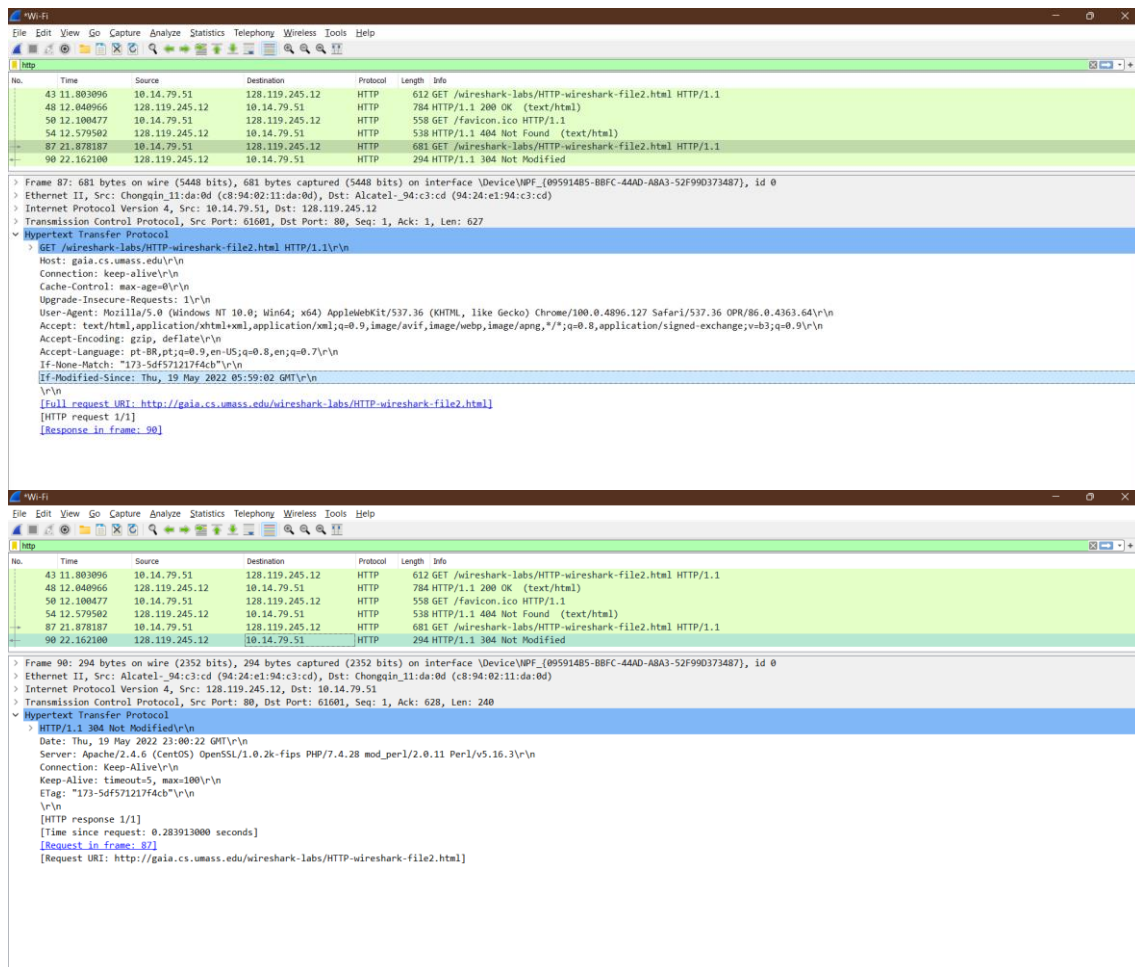
10. Now inspect the contents of the second HTTP GET request from your browser to the server. Do you see an “IF-MODIFIED-SINCE:” line in the HTTP GET? If so, what information follows the “IF-MODIFIED-SINCE:” header?

Sim.

If-Modified-Since: Thu, 19 May 2022 05:59:02 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.

304 Not Modified. Não foi necessário retornar o conteúdo pois como não houve modificação, o arquivo já consta no cache.



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?

1 requisição HTTP GET. 119.

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

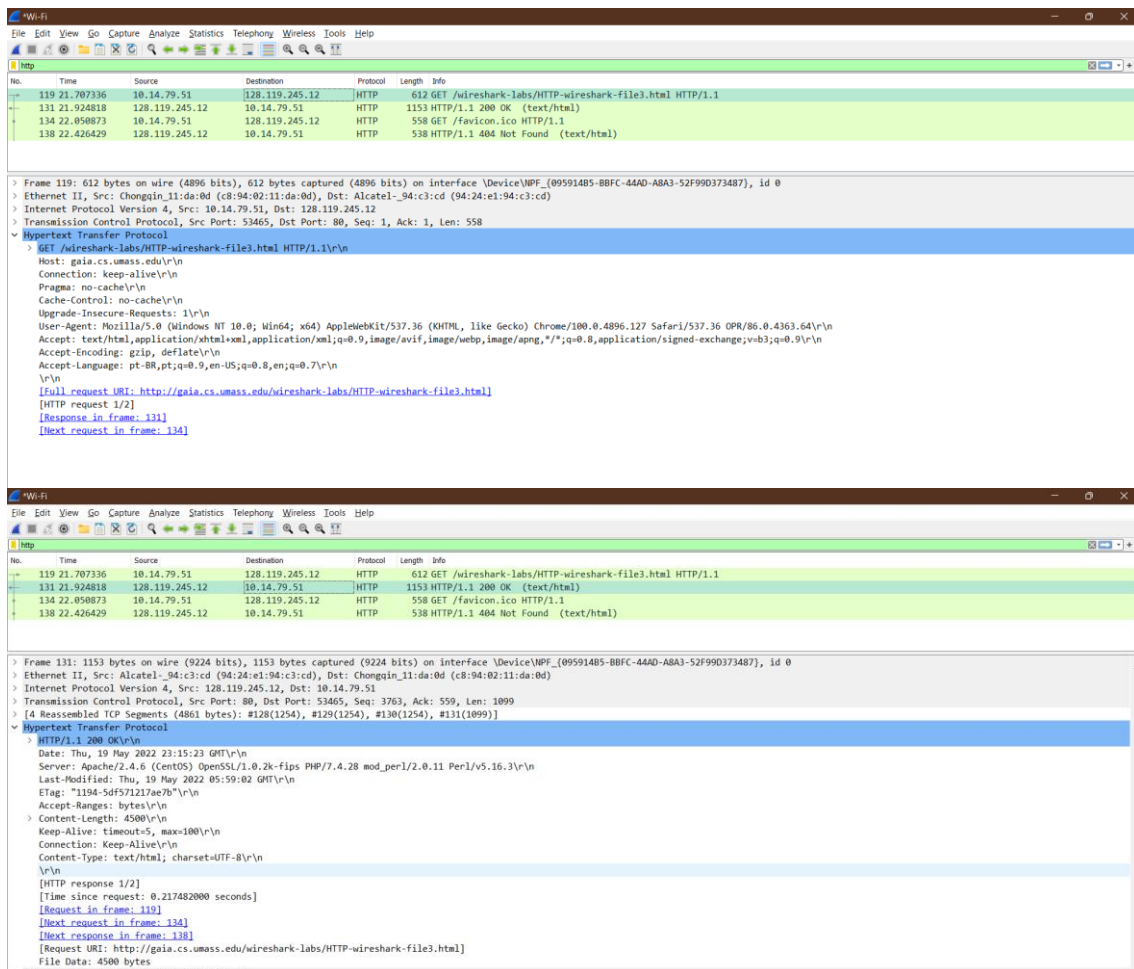
131.

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

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?

[4 Reassembled TCP Segments (4861 bytes): #128(1254), #129(1254), #130(1254), #131(1099)]



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

4 GET. 128.119.245.12

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.

As imagens são baixadas de modo sequencial, como é observado nas requisições, o cliente executa dois GET diferentes (uma para cada imagem) seguidos.

No.	Time	Source	Destination	Protocol	Length	Info
121	12.538386	192.168.100.207	128.119.245.12	HTTP	612	GET /wireshark-labs/HTTP-wireshark-file4.html HTTP/1.1
125	12.964718	128.119.245.12	192.168.100.207	HTTP	1355	HTTP/1.1 200 OK (text/html)
128	12.909900	192.168.100.207	128.119.245.12	HTTP	558	GET /pearson.png HTTP/1.1
133	13.167425	128.119.245.12	192.168.100.207	HTTP	841	HTTP/1.1 200 OK (PNG)
137	13.168194	192.168.100.207	178.79.137.164	HTTP	525	GET /8E_cover_small.jpg HTTP/1.1
144	13.743657	178.79.137.164	192.168.100.207	HTTP	225	HTTP/1.1 301 Moved Permanently
646	17.479240	192.168.100.207	128.119.245.12	HTTP	558	GET /favicon.ico HTTP/1.1
651	17.639223	128.119.245.12	192.168.100.207	HTTP	538	HTTP/1.1 404 Not Found (text/html)

> Frame 121: 612 bytes on wire (4896 bits), 612 bytes captured (4896 bits) on interface \Device\NPF\_{095914B5-BBFC-44AD-ABA3-52F990373487}, id 0

> Ethernet II, Src: Chongqin\_11:da:0d (c8:94:02:11:da:0d), Dst: HuaweiTe\_7d:d0:40 (48:57:02:7d:d0:40)

> Internet Protocol Version 4, Src: 192.168.100.207, Dst: 128.119.245.12

> Transmission Control Protocol, Src Port: 65399, Dst Port: 80, Seq: 1, Ack: 1, Len: 558

> Hypertext Transfer Protocol

> GET /wireshark-labs/HTTP-wireshark-file4.html HTTP/1.1\r\n

Host: gaia.cs.umass.edu\r\n

Connection: keep-alive\r\n

Pragma: no-cache\r\n

Cache-Control: no-cache\r\n

Upgrade-Insecure-Requests: 1\r\n

User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/100.0.4896.127 Safari/537.36 OPR/86.0.4363.64\r\n

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,\*/\*;q=0.8,application/signed-exchange;v=b3;q=0.9\r\n

Accept-Encoding: gzip, deflate\r\n

Accept-Language: pt-BR,pt;q=0.9,en-US;q=0.8,en;q=0.7\r\n

\r\n

[Full request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file4.html]

[HTTP request 1/1]

[Response in frame: 125]

[Next request in frame: 128]

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

401 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 d2lyZXNoYXJrLXN0dWRlbnRzOm5ldHdvcmcs=

No.	Time	Source	Destination	Protocol	Length	Info
76	20.593252	192.168.100.207	128.119.245.12	HTTP	628	GET /wireshark-labs/protected_pages/HTTP-wireshark-file5.html HTTP/1.1
80	21.136240	128.119.245.12	192.168.100.207	HTTP	771	HTTP/1.1 401 Unauthorized (text/html)
259	48.086719	192.168.100.207	128.119.245.12	HTTP	670	GET /wireshark-labs/protected_pages/HTTP-wireshark-file5.html HTTP/1.1
264	48.550973	128.119.245.12	192.168.100.207	HTTP	544	HTTP/1.1 200 OK (text/html)
272	48.772004	192.168.100.207	128.119.245.12	HTTP	574	GET /favicon.ico HTTP/1.1
275	49.400639	128.119.245.12	192.168.100.207	HTTP	538	HTTP/1.1 404 Not Found (text/html)

> Frame 76: 628 bytes on wire (5024 bits), 628 bytes captured (5024 bits) on interface \Device\NPF\_{095914B5-BBFC-44AD-ABA3-52F990373487}, id 0

> Ethernet II, Src: Chongqin\_11:da:0d (c8:94:02:11:da:0d), Dst: HuaweiTe\_7d:d0:40 (48:57:02:7d:d0:40)

> Internet Protocol Version 4, Src: 192.168.100.207, Dst: 128.119.245.12

> Transmission Control Protocol, Src Port: 49193, Dst Port: 80, Seq: 1, Ack: 1, Len: 574

> Hypertext Transfer Protocol

> GET /wireshark-labs/protected\_pages/HTTP-wireshark-file5.html HTTP/1.1\r\n

Host: gaia.cs.umass.edu\r\n

Connection: keep-alive\r\n

Pragma: no-cache\r\n

Cache-Control: no-cache\r\n

Upgrade-Insecure-Requests: 1\r\n

User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/100.0.4896.127 Safari/537.36 OPR/86.0.4363.64\r\n

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,\*/\*;q=0.8,application/signed-exchange;v=b3;q=0.9\r\n

Accept-Encoding: gzip, deflate\r\n

Accept-Language: pt-BR,pt;q=0.9,en-US;q=0.8,en;q=0.7\r\n

\r\n