Data Communications I Lab2 Report

Yang Meng
01679623
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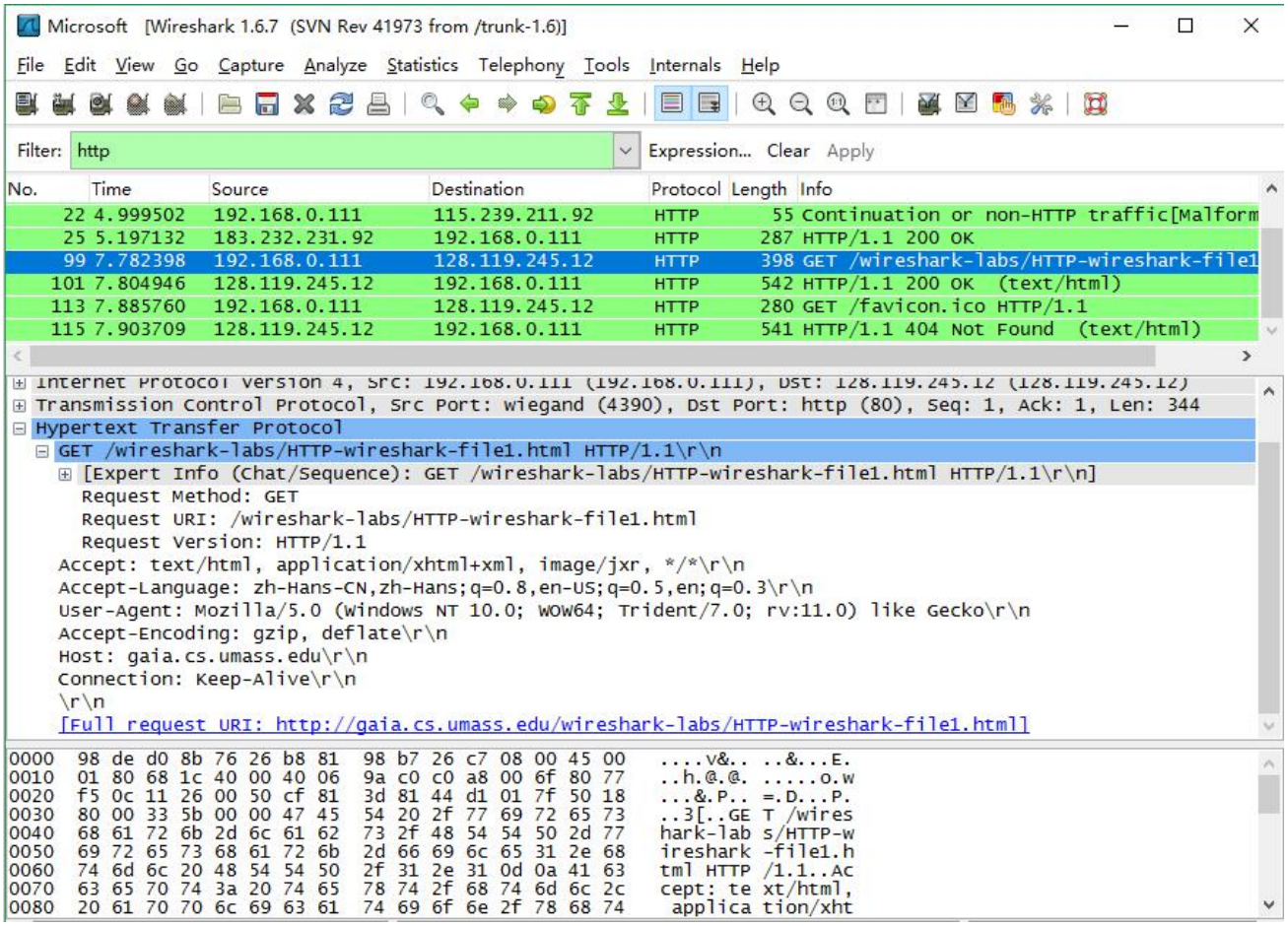


1. Is your browser running HTTP version 1.0 or 1.1? What version of HTTP is the server running?

Answer: My browser is running HTTP version 1.1. Also, the server is running HTTP version 1.1

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

Answer: Accept language: Simplified Chinese(zh-Hans-CN), English(en-US)

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

Answer: My computer IP: 192.168.0.111; Server IP address: 128.119.245.12;

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

Answer: Status code: 200;

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

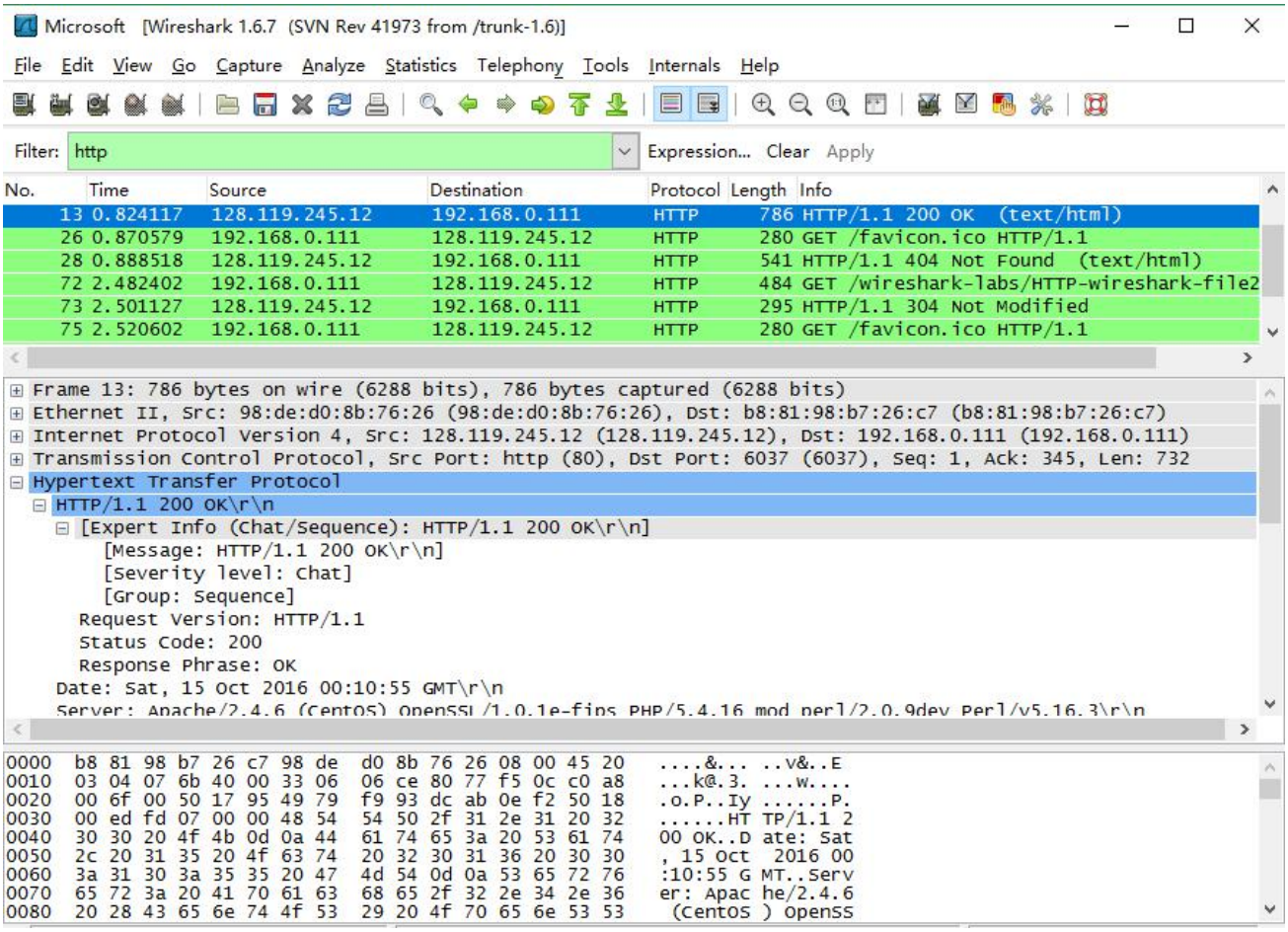
Answer: Last-Modified: Friday, 10/14/2016 05:59:01 GMT

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

Answer: 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.

Answer: No



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

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

Answer: Yes, because the server returns the information blow:

```
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 IN-MODIFIED-SINCE<br>\n
field in your browser's HTTP GET request to the server.\n
```

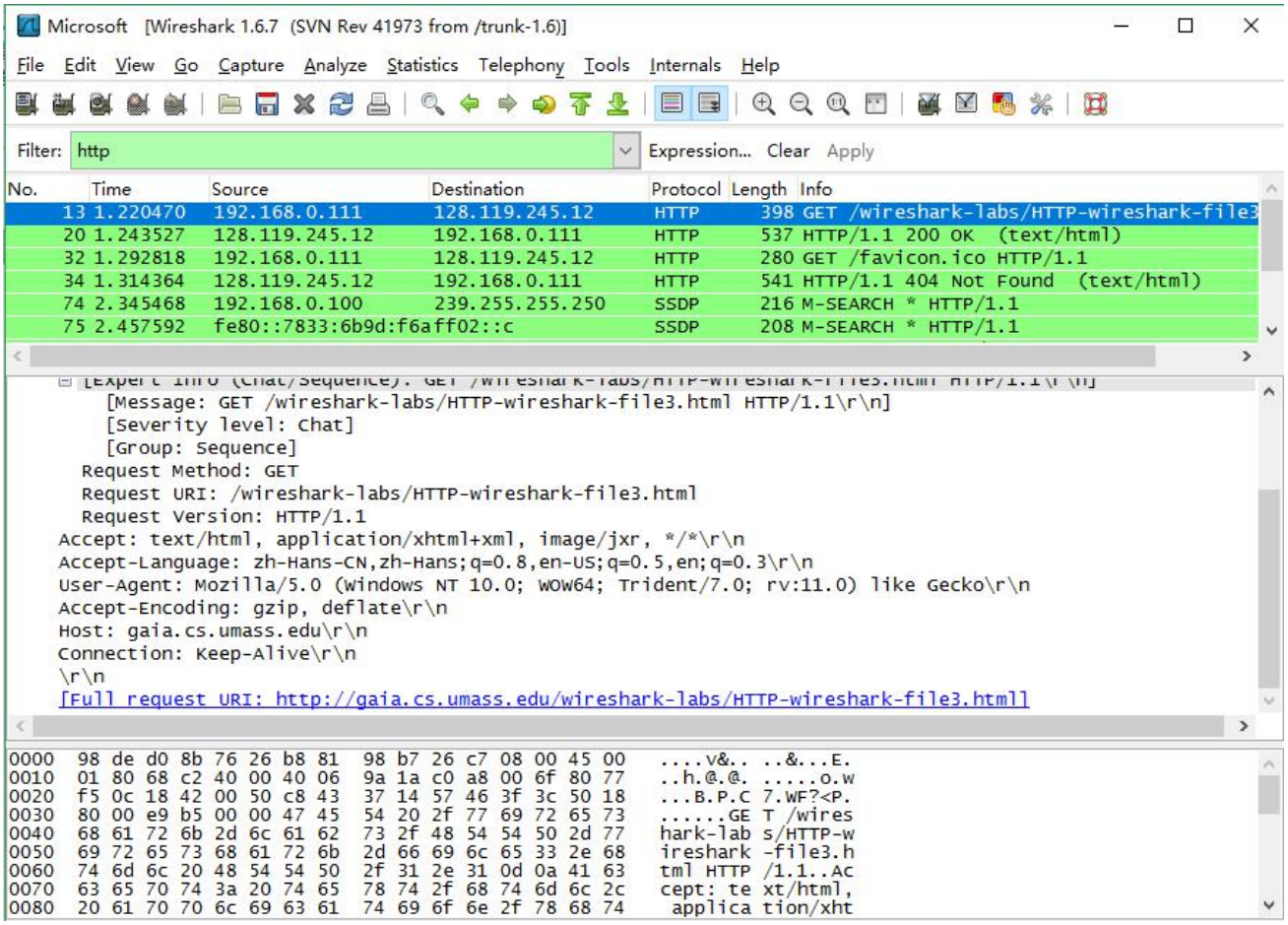
10. Now inspect the contents of the second HTTP GET request from your browser to the server. Do you see an "IF-MODIFIED-SINCE:" line in the HTTP GET? If so, what information follows the "IF-MODIFIED-SINCE:" header?

Answer: Yes, "If-Modified-Since:" followed by:

```
Host: gaia.cs.umass.edu\r\n
If-Modified-Since: Fri, 14 Oct 2016 05:59:01 GMT\r\n
If-None-Match: "173-53eccec489fc5"\r\n
```

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: Status code: 304, Response Phrase: Not Modified; The server didn't return the contents of the file since the copy has already existed in the client.



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: My browser sent 1 HTTP GET request; Packet number 13 contains the GET message for the Bill of Rights

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

Answer: Packet 20 does.

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

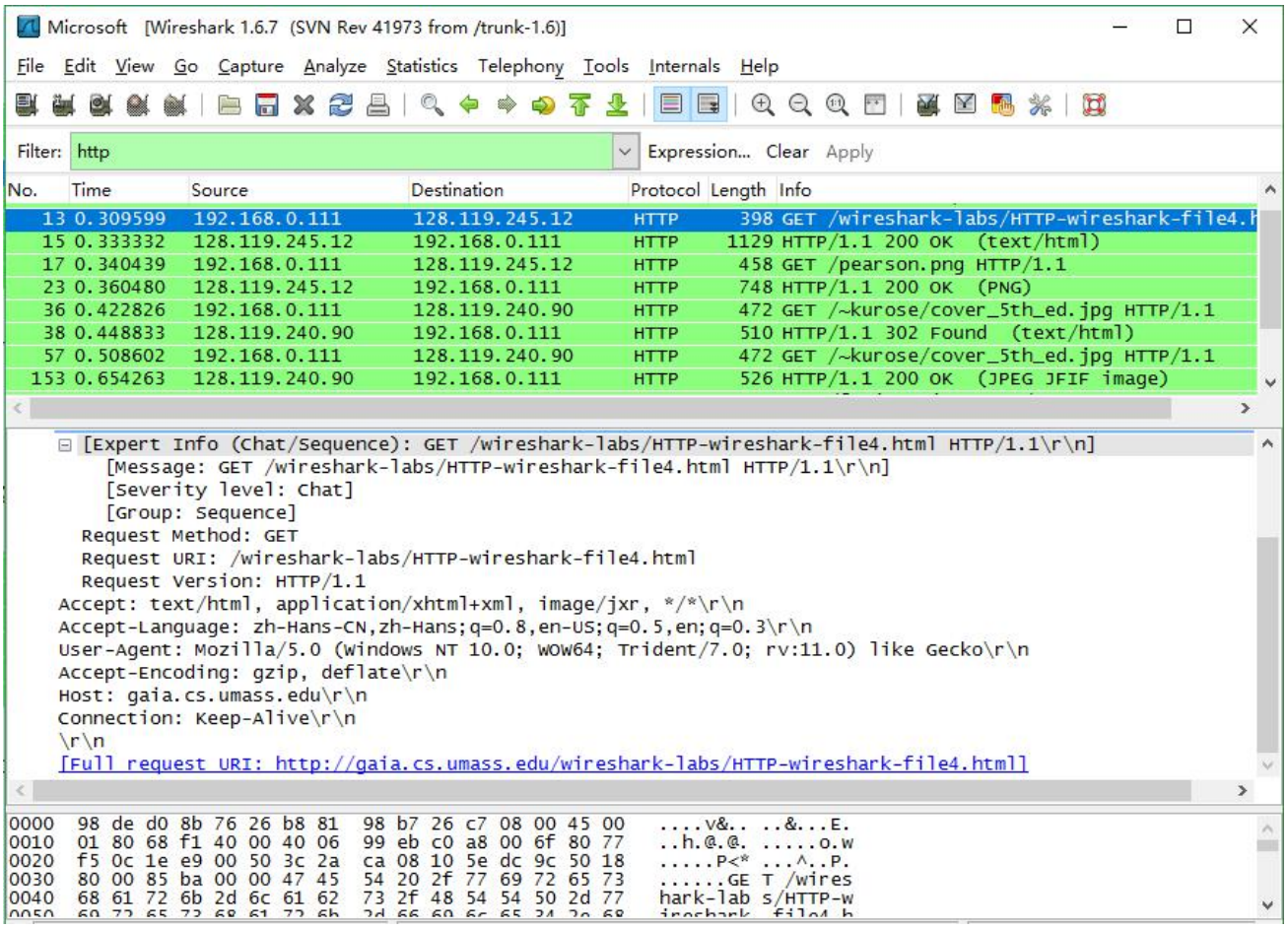
Answer: The Status code: 200, and the response phrase: OK

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 Reassembled TCP Segments (4863 bytes): #16(1460), #18(1460), #19(1460), #20(483)]
  [Frame: 16, payload: 0-1459 (1460 bytes)]
  [Frame: 18, payload: 1460-2919 (1460 bytes)]
  [Frame: 19, payload: 2920-4379 (1460 bytes)]
  [Frame: 20, payload: 4380-4862 (483 bytes)]
  [Segment count: 4]
  [Reassembled TCP length: 4863]
```

Therefore, four data-containing TCP segments were needed



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

Answer:

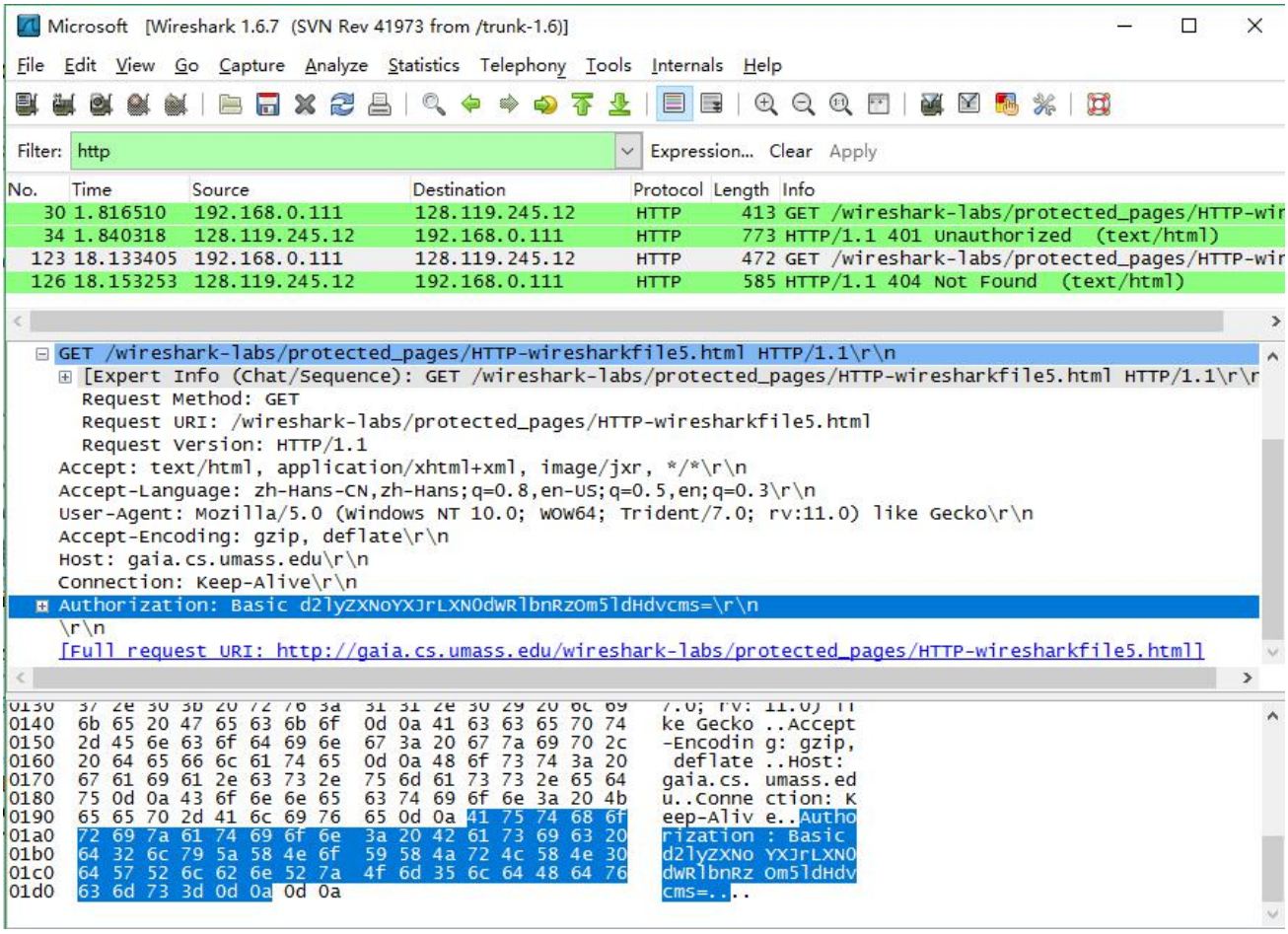
13	0.309599	192.168.0.111	128.119.245.12	HTTP	398 GET /wireshark-labs/HTTP-wireshark-file4.
15	0.333332	128.119.245.12	192.168.0.111	HTTP	1129 HTTP/1.1 200 OK (text/html)
17	0.340439	192.168.0.111	128.119.245.12	HTTP	458 GET /pearson.png HTTP/1.1
23	0.360480	128.119.245.12	192.168.0.111	HTTP	748 HTTP/1.1 200 OK (PNG)
36	0.422826	192.168.0.111	128.119.240.90	HTTP	472 GET /~kurose/cover_5th_ed.jpg HTTP/1.1
38	0.448833	128.119.240.90	192.168.0.111	HTTP	510 HTTP/1.1 302 Found (text/html)
57	0.508602	192.168.0.111	128.119.240.90	HTTP	472 GET /~kurose/cover_5th_ed.jpg HTTP/1.1
153	0.654263	128.119.240.90	192.168.0.111	HTTP	526 HTTP/1.1 200 OK (JPEG JFIF image)
164	0.689431	192.168.0.111	128.119.245.12	HTTP	280 GET /favicon.ico HTTP/1.1
169	0.728292	128.119.245.12	192.168.0.111	HTTP	541 HTTP/1.1 404 Not Found (text/html)

My browser sent 5 HTTP GET request messages;

These requests were sent to 2 IP addresses: 128.119.245.12 and 128.119.240.90

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: My browser downloaded these 2 images serially, because they are received over more than one TCP connection, ports are: 7914, 7916, 7918.



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 Response 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?

Answer: Authorization: Basic d2lyZXNoYXJrLXN0dWRlbnRzOm5ldHdvcms=\r\n