

# LAB 2

Tags

## Lớp IT005.P13.2 - BÀI TẬP THỰC HÀNH SỐ 2

Tên - MSSV: Trần Nguyễn Thái Bình - 23520161

---

### 1. HTTP GET/response cơ bản

No.	Time	Source	Destination	Protocol	Length	Info
464	1.083857	192.168.28.24	128.119.245.12	HTTP	551	GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1
514	1.349102	128.119.245.12	192.168.28.24	HTTP	540	HTTP/1.1 200 OK (text/html)
562	1.515011	192.168.28.24	128.119.245.12	HTTP	536	GET /favicon.ico HTTP/1.1
651	1.774251	128.119.245.12	192.168.28.24	HTTP	538	HTTP/1.1 404 Not Found (text/html)

1. Trình duyệt đang sử dụng phiên bản HTTP 1.0 hay 1.1? Phiên bản HTTP server đang sử dụng là bao nhiêu?

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

- HTTP 1.1

2. Trình duyệt hỗ trợ những ngôn ngữ nào?

No.	Time	Source	Destination	Protocol	Length Info
464	1.083857	192.168.28.24	128.119.245.12	HTTP	551 GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1
514	1.349102	128.119.245.12	192.168.28.24	HTTP	540 HTTP/1.1 200 OK (text/html)
562	1.515011	192.168.28.24	128.119.245.12	HTTP	536 GET /favicon.ico HTTP/1.1
651	1.774251	128.119.245.12	192.168.28.24	HTTP	538 HTTP/1.1 404 Not Found (text/html)

  

```

Frame 464: 551 bytes on wire (4408 bits), 551 bytes captured (4408 bits) on interface \Device\NPF...
Ethernet II, Src: Intel_95:2d:88 (20:c1:9b:95:2d:88), Dst: TplinkTechno_4e:e8:5c (b0:95:8e:4e:e8:5c)
Internet Protocol Version 4, Src: 192.168.28.24, Dst: 128.119.245.12
Transmission Control Protocol, Src Port: 62713, Dst Port: 80, Seq: 1, Ack: 1, Len: 497
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/73.0.3683.103 Safari/537.36\r\n
    Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8\r\n
    Accept-Encoding: gzip, deflate\r\n
    Accept-Language: en-GB,en;q=0.9,vi;q=0.8\r\n
  [Response in Frame: 514]
  [Full request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file1.html]

```

- Tiếng anh (en-GB)
- Tiếng việt (vi)

### 3. Địa chỉ IP của máy tính chúng ta là bao nhiêu? Của gaia.cs.umass.edu server là bao nhiêu?

Source	Destination
192.168.28.24	128.119.245.12
128.119.245.12	192.168.28.24
192.168.28.24	128.119.245.12
128.119.245.12	192.168.28.24

- Địa chỉ IP của máy tính: 192.168.28.24
- Địa chỉ của gaia.cs.umass.edu: 128.119.245.12

### 4. Mã trạng thái (status code) trả về từ server là gì?

No.	Time	Source	Destination	Protocol	Length Info
464	1.083857	192.168.28.24	128.119.245.12	HTTP	551 GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1
514	1.349102	128.119.245.12	192.168.28.24	HTTP	540 HTTP/1.1 200 OK (text/html)
562	1.515011	192.168.28.24	128.119.245.12	HTTP	536 GET /favicon.ico HTTP/1.1
651	1.774251	128.119.245.12	192.168.28.24	HTTP	538 HTTP/1.1 404 Not Found (text/html)

- 200 OK - HTML response data
- 404 Not found - Favicon (trang web không có favicon)

## 5. Thời điểm file HTML được thay đổi lần cuối tại server là lúc nào?

Last-Modified: Sun, 06 Oct 2024 05:59:01 GMT

No.	Time	Source	Destination	Protocol	Length Info
464	1.083857	192.168.28.24	128.119.245.12	HTTP	551 GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1
514	1.349102	128.119.245.12	192.168.28.24	HTTP	540 HTTP/1.1 200 OK (text/html)
562	1.515011	192.168.28.24	128.119.245.12	HTTP	536 GET /favicon.ico HTTP/1.1
651	1.774251	128.119.245.12	192.168.28.24	HTTP	538 HTTP/1.1 404 Not Found (text/html)

  

Frame 514: 540 bytes on wire (4320 bits), 540 bytes captured (4320 bits) on interface \Device\NPF...	00c0	2e 31 36 2e 33 0d 0a 4c 61 73 74 2d 4d 6f 64 69	.16.3..ast-Modi
Ethernet II, Src: TplinkTechno_4e:e8:5c (b0:95:8e:4e:e8:5c), Dst: Intel_95:2d:88 (20:c1:9b:95:2d:88)	00d0	66 69 65 64 3a 20 53 75 6e 2c 20 30 36 20 4f 63	fied: Su n, 06 Oc
Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.28.24	00e0	74 20 32 30 32 34 20 30 35 3a 35 39 3a 30 31 20	t 2024 0 5:59:01
Transmission Control Protocol, Src Port: 80, Dst Port: 62713, Seq: 1, Ack: 498, Len: 486	00f0	47 4d 54 0d 0a 45 54 61 67 3a 20 22 38 30 2d 36	GMT..ETa g: "80-6
Hypertext Transfer Protocol	0100	32 33 63 38 39 39 64 34 37 32 63 62 22 0d 0a 41	23c899d4 72cb"--A
HTTP/1.1 200 OK\r\n	0110	63 63 65 70 74 2d 52 61 6e 67 65 73 3a 20 62 79	ccept-Ra nges: by
Date: Sun, 06 Oct 2024 12:41:47 GMT\r\n	0120	74 65 73 0d 0a 43 6f 6e 74 65 6e 74 2d 4c 65 6e	tes-<Con tent-Len
Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/7.4.33 mod_perl/2.0.11 Perl/v5.16.3\r\n	0130	67 74 68 3a 20 31 32 38 0d 0a 4b 65 65 70 2d 41	gth: 128 ..Keep-A
Last-Modified: Sun, 06 Oct 2024 05:59:01 GMT\r\n	0140	6c 69 76 65 3a 20 74 69 6d 65 6f 75 74 3d 35 2c	live: ti meout=5,
Etag: "80-623c899d472cb"\r\n	0150	20 6d 61 78 3d 31 30 30 0d 0a 43 6f 6e 6e 65 63	max=100 ..Connec
Accept-Ranges: bytes\r\n	0160	74 69 6f 6e 3a 20 4b 65 65 70 2d 41 6c 69 76 65	tion: Ke ep-Alive
Content-Length: 128\r\n	0170	0d 0a 43 6f 6e 74 65 6e 74 2d 54 79 70 65 3a 20	..Conten t-Type:
Keep-Alive: timeout=5, max=100\r\n	0180	74 65 78 74 2f 68 74 6d 6c 3b 20 63 68 61 72 73	text/htm l; charse
Connection: Keep-Alive\r\n	0190	65 74 3d 55 54 46 2d 38 0d 0a 0d 0a 3c 68 74 6d	et=UTF-8 ....<htm
Content-Type: text/html; charset=UTF-8\r\n	01a0	6c 3e 0a 43 6f 6e 67 72 61 74 75 6c 61 74 69 6f	l> Congr atulatio
\r\n	01b0	6e 73 2e 20 20 59 6f 75 27 76 65 20 64 6f 77 6e	ns. You 've down
[Request in frame: 464]	01c0	6c 6f 61 64 65 64 20 74 68 65 20 66 69 6c 65 20	loaded t he file
[Time since request: 0.265245000 seconds]	01d0	0a 68 74 74 70 3a 2f 2f 67 61 69 61 2e 63 73 2e	..http:// gaia.cs.
[Request URI: /wireshark-labs/HTTP-wireshark-file1.html]	01e0	75 6d 61 73 73 2e 65 64 75 2f 77 69 72 65 73 68	umass.ed u/wiresh
[Full request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file1.html]	01f0	61 72 6b 2d 6c 61 62 73 2f 48 54 54 50 2d 77 69	ark-labs /HTTP-wi
	0200	72 65 73 68 61 72 6b 2d 66 69 6c 65 31 2e 68 74	reshark- file1.ht
	0210	6d 6c 21 0a 3c 2f 68 74 6d 6c 3e 0a	ml</ht ml>

## 6. Server đã trả về cho trình duyệt bao nhiêu bytes nội dung?

- HTML response data: 128 bytes

No.	Time	Source	Destination	Protocol	Length Info
464	1.083857	192.168.28.24	128.119.245.12	HTTP	551 GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1
514	1.349102	128.119.245.12	192.168.28.24	HTTP	540 HTTP/1.1 200 OK (text/html)
562	1.515011	192.168.28.24	128.119.245.12	HTTP	536 GET /favicon.ico HTTP/1.1
651	1.774251	128.119.245.12	192.168.28.24	HTTP	538 HTTP/1.1 404 Not Found (text/html)

  

Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.28.24	00c0	2e 31 36 2e 33 0d 0a 4c 61 73 74 2d 4d 6f 64 69	.16.3..ast-Modi
Transmission Control Protocol, Src Port: 80, Dst Port: 62713, Seq: 1, Ack: 498, Len: 486	00d0	74 20 32 30 32 34 20 30 35 3a 35 39 3a 30 31 20	fied: Su n, 06 Oc
Hypertext Transfer Protocol	00e0	47 4d 54 0d 0a 45 54 61 67 3a 20 22 38 30 2d 36	t 2024 0 5:59:01
HTTP/1.1 200 OK\r\n	00f0	47 4d 54 0d 0a 45 54 61 67 3a 20 22 38 30 2d 36	GMT..ETa g: "80-6
Date: Sun, 06 Oct 2024 12:41:47 GMT\r\n	0100	32 33 63 38 39 39 64 34 37 32 63 62 22 0d 0a 41	23c899d4 72cb"--A
Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/7.4.33 mod_perl/2.0.11 Perl/v5.16.3\r\n	0110	63 63 65 70 74 2d 52 61 6e 67 65 73 3a 20 62 79	ccept-Ra nges: by
Last-Modified: Sun, 06 Oct 2024 05:59:01 GMT\r\n	0120	74 65 73 0d 0a 43 6f 6e 74 65 6e 74 2d 4c 65 6e	tes-<Con tent-Len
Etag: "80-623c899d472cb"\r\n	0130	67 74 68 3a 20 31 32 38 0d 0a 4b 65 65 70 2d 41	gth: 128 ..Keep-A
Accept-Ranges: bytes\r\n	0140	6c 69 76 65 3a 20 74 69 6d 65 6f 75 74 3d 35 2c	live: ti meout=5,
Content-Length: 128\r\n	0150	20 6d 61 78 3d 31 30 30 0d 0a 43 6f 6e 6e 65 63	max=100 ..Connec
Keep-Alive: timeout=5, max=100\r\n	0160	74 69 6f 6e 3a 20 4b 65 65 70 2d 41 6c 69 76 65	tion: Ke ep-Alive
Connection: Keep-Alive\r\n	0170	0d 0a 43 6f 6e 74 65 6e 74 2d 54 79 70 65 3a 20	..Conten t-Type:
Content-Type: text/html; charset=UTF-8\r\n	0180	74 65 78 74 2f 68 74 6d 6c 3b 20 63 68 61 72 73	text/htm l; charse
\r\n	0190	65 74 3d 55 54 46 2d 38 0d 0a 0d 0a 3c 68 74 6d	et=UTF-8 ....<htm
[Request in frame: 464]	01a0	6c 3e 0a 43 6f 6e 67 72 61 74 75 6c 61 74 69 6f	l> Congr atulatio
[Time since request: 0.265245000 seconds]	01b0	6e 73 2e 20 20 59 6f 75 27 76 65 20 64 6f 77 6e	ns. You 've down
[Request URI: /wireshark-labs/HTTP-wireshark-file1.html]	01c0	6c 6f 61 64 65 64 20 74 68 65 20 66 69 6c 65 20	loaded t he file
[Full request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file1.html]	01d0	0a 68 74 74 70 3a 2f 2f 67 61 69 61 2e 63 73 2e	..http:// gaia.cs.
File Data: 128 bytes	01e0	75 6d 61 73 73 2e 65 64 75 2f 77 69 72 65 73 68	umass.ed u/wiresh
Line-based text data: text/html (4 lines)	01f0	61 72 6b 2d 6c 61 62 73 2f 48 54 54 50 2d 77 69	ark-labs /HTTP-wi
	0200	72 65 73 68 61 72 6b 2d 66 69 6c 65 31 2e 68 74	reshark- file1.ht
	0210	6d 6c 21 0a 3c 2f 68 74 6d 6c 3e 0a	ml</ht ml>

- Favicon: 209 bytes

No.	Time	Source	Destination	Protocol	Length	Info
✓ 464	1.083857	192.168.28.24	128.119.245.12	HTTP	551	GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1
✓ 514	1.349102	128.119.245.12	192.168.28.24	HTTP	540	HTTP/1.1 200 OK (text/html)
✓ 562	1.515011	192.168.28.24	128.119.245.12	HTTP	536	GET /favicon.ico HTTP/1.1
✓ 651	1.774251	128.119.245.12	192.168.28.24	HTTP	538	HTTP/1.1 404 Not Found (text/html)
4						
+	Frame 651: 538 bytes on wire (4304 bits), 538 bytes captured (4304 bits) on interface Device\NPF... (2B84...)					
+	Ethernet II, Src: TplinkTechno...e8:5c (b0:95:8e:4e:e8:5c), Dst: Intel_95:2d:88 (20:c1:9b:95:2d:88)					
+	Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.28.24					
+	Transmission Control Protocol, Src Port: 80, Dst Port: 62713, Seq: 4874, Ack: 980, Len: 484					
+	Hypertext Transfer Protocol					
+	HTTP/1.1 404 Not Found\r\n					
+	Date: Sun, 06 Oct 2024 12:41:48 GMT\r\n					
+	Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/7.4.33 mod_perl/2.0.11 Perl/v5.16.3\r\n					
+	Content-Length: 209\r\n					
+	Keep-Alive: timeout=5, max=99\r\n					
+	Connection: Keep-Alive\r\n					
+	Content-Type: text/html; charset=iso-8859-1\r\n					
+	\r\n					
+	[Request in frame 562]					
+	[Time since request: 0.259240000 seconds]					
+	[Request URI: /favicon.ico]					
+	[Full request URI: http://gaia.cs.umass.edu/favicon.ico]					
+	File Data: 209 bytes					
+	Line-based text data: text/html (7 lines)					

## 2. HTTP GET/response có điều kiện

## 7. Xem xét nội dung của HTTP GET đầu tiên. Chúng ta có thấy dòng "IF-MODIFIED-SINCE" hay không?

- Không

No.	Time	Source	Destination	Protocol	Length	Info
874	2.409913	192.168.28.24	128.119.245.12	HTTP	551	GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
941	2.479624	128.119.245.12	192.168.28.24	HTTP	784	HTTP/1.1 200 OK (text/html)
998	2.832389	128.168.28.24	128.119.245.12	HTTP	536	GET /favicon.ico HTTP/1.1
1131	3.100332	128.119.245.12	128.168.28.24	HTTP	538	HTTP/1.1 404 Not Found (text/html)
1316	4.137157	192.168.28.24	128.119.245.12	HTTP	620	GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
1369	4.405443	128.119.245.12	192.168.28.24	HTTP	293	HTTP/1.1 304 Not Modified

```

4
} Frame 874: 551 bytes on wire (4408 bits), 551 bytes captured (4408 bits) on interface \Device\NPF...
} Ethernet II, Src: Intel_95:2d:88 (20:c1:9b:95:2d:88), Dst: TplinkTechno_4e:e8:5c (b0:95:8e:4e:e8:5c)
} Internet Protocol Version 4, Src: 192.168.28.24, Dst: 128.119.245.12
} Transmission Control Protocol, Src Port: 62991, Dst Port: 80, Seq: 1, Ack: 1, Len: 497
} Hypertext Transfer Protocol
  GET /wireshark-labs/HTTP-wireshark-file2.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/1...
  Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8\r\n
  Sec-EP: 1\r\n
  Accept-Encoding: gzip, deflate\r\n
  Accept-Language: en-GB,en;q=0.9,vi;q=0.8\r\n
  \r\n
  [Response in frame 941]
  [Full request URL: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file2.html]

```

**8. Xem xét nội dung phản hồi từ server. Server có thật sự trả về nội dung của file HTML hay không? Tại sao?**

No.	Time	Source	Destination	Protocol	Length Info
874	2.409913	192.168.28.24	128.119.245.12	HTTP	551 GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
941	2.679624	128.119.245.12	192.168.28.24	HTTP	784 HTTP/1.1 200 OK (text/html)
998	2.832389	192.168.28.24	128.119.245.12	HTTP	536 GET /favicon.ico HTTP/1.1
1131	3.100332	128.119.245.12	192.168.28.24	HTTP	538 HTTP/1.1 404 Not Found (text/html)
1316	4.137157	192.168.28.24	128.119.245.12	HTTP	620 GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
1369	4.405443	128.119.245.12	192.168.28.24	HTTP	293 HTTP/1.1 304 Not Modified

  

Keep-Alive: timeout=5, max=100\r\n	0190	73 65 74 3d 55 54 46 2d	38 0d 0a 0d 0a 0a 3c 68	set-UTF-8
Connection: Keep-Alive\r\n	01a0	74 6d 6c 3e 08 0a 43 6f	6e 67 72 61 74 75 6c 61	Content-Type: text/html; charset=UTF-8\r\n
Content-Type: text/html; charset=UTF-8\r\n	01b0	74 69 6f 6e 73 20 61 67	61 69 6e 21 20 20 4e 6f	
\r\n	01c0	77 20 79 6f 75 27 76 65	20 64 6f 77 6e 6c 6f 61	
[Request in frame: 874]	01d0	64 65 64 20 74 68 65 20	66 69 6c 65 20 6c 61 62	
[Time since request: 0.269711000 seconds]	01e0	32 2d 32 2e 68 74 6d 6c	2e 20 3c 62 72 3e 0a 54	
[Request URI: /wireshark-labs/HTTP-wireshark-file2.html]	01f0	68 69 73 20 66 69 6c 65	27 73 20 6c 61 73 74 20	
[Full request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file2.html]	0200	6d 6f 64 69 66 69 63 61	74 69 6f 6e 20 64 61 74	
File Data: 371 bytes	0210	65 20 77 69 6c 6c 20 6e	6f 74 20 63 68 61 6e 67	
Line-based text data: text/html (10 lines)	0220	55 2e 20 20 3c 70 3e 0a	54 68 75 73 20 20 69 6e	
\n	0230	20 79 6f 75 20 64 6f 77	6e 6c 6f 61 64 20 74 68	
<html>\n	0240	69 73 20 6d 75 6c 74 69	70 6c 65 20 74 69 6d 65	
\n	0250	73 20 6f 6e 20 79 6f 75	72 20 62 72 6f 77 73 65	
Congratulations again! Now you've downloaded the file lab2-2.html.  \n	0260	72 2c 20 61 20 63 6f 6d	70 6c 65 74 65 20 63 6f	
This file's last modification date will not change. <p>\n	0270	70 79 20 3c 62 72 3e 0a	77 69 6c 6c 20 6f 6e 6c	
Thus if you download this multiple times on your browser, a complete copy  \n	0280	79 20 6f 6e 20 73 65 6e	74 20 6f 6e 63 65 20 62	
will only be sent once by the server due to the inclusion of the IN-MODIFIED-SINCE \n	0290	79 20 74 68 65 20 73 65	72 76 65 72 20 64 75 65	
field in your browser's HTTP GET request to the server.\n	02a0	20 74 6f 20 74 68 65 20	69 6e 63 6c 75 73 69 6f	
\n	02b0	6e 20 6f 66 20 74 68 65	20 49 4e 2d 4d 4f 44 49	
</html>\n	02c0	46 49 45 44 2d 53 49 4e	43 45 3c 62 72 3e 0a 66	
	02d0	69 65 6c 64 20 69 6e 20	79 6f 75 72 20 62 72 6f	
	02e0	77 73 65 72 27 73 20 48	54 54 50 20 47 45 54 20	

- Có, vì đây là lần đầu tiên request nên server trả về toàn bộ HTML data

## 9. Xem xét nội dung của HTTP GET thứ 2. Chúng ta có thấy dòng "IF-MODIFIED-SINCE" hay không? Nếu có, giá trị của IF-MODIFIED-SINCE là gì?

No.	Time	Source	Destination	Protocol	Length Info
874	2.409913	192.168.28.24	128.119.245.12	HTTP	551 GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
941	2.679624	128.119.245.12	192.168.28.24	HTTP	784 HTTP/1.1 200 OK (text/html)
998	2.832389	192.168.28.24	128.119.245.12	HTTP	536 GET /favicon.ico HTTP/1.1
1131	3.100332	128.119.245.12	192.168.28.24	HTTP	538 HTTP/1.1 404 Not Found (text/html)
1316	4.137157	192.168.28.24	128.119.245.12	HTTP	620 GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
1369	4.405443	128.119.245.12	192.168.28.24	HTTP	293 HTTP/1.1 304 Not Modified

  

Frame 1316: 620 bytes on wire (4960 bits), 620 bytes captured (4960 bits) on interface \Device\NPF...	0110	6c 65 57 65 62 4b 69 74	2f 35 33 37 2e 33 36 20	leWebKit/537.36
Ethernet II, Src: Intel_95:2d:88 (20:c1:9b:95:2d:88), Dst: TplinkTechno_4e:e8:5c (b0:95:8e:4e:e8:5c)	0120	28 4b 48 54 4d 4c 2c 20	6c 69 6b 65 20 47 65 63	(KHTML, like Gecko)
Internet Protocol Version 4, Src: 192.168.28.24, Dst: 128.119.245.12	0130	6b 6f 29 20 43 68 72 6f	6d 65 2f 31 32 38 2e 30	Chrome/128.0
Transmission Control Protocol, Src Port: 62981, Dst Port: 80, Seq: 980, Ack: 1215, Len: 566	0140	2e 30 2e 38 20 53 61 66	61 72 69 2f 35 33 37 2e	0.0 Safari/537.36
Hypertext Transfer Protocol	0150	33 36 0d 0a 41 63 63 65	70 74 3a 20 74 65 78 74	36;Accept: text/html,application/javascript
GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1\r\n	0160	2f 68 74 6d 6c 2c 61 70	70 6c 69 63 61 74 69 6f	
Host: gaia.cs.umass.edu\r\n	0170	6e 2f 78 68 74 6d 6c 2b	78 6d 6c 2c 61 70 70 6c	
Connection: keep-alive\r\n	0180	69 63 61 74 69 6f 6e 2f	78 6d 6c 3b 71 3d 30 2e	
Cache-Control: max-age=0\r\n	0190	39 2c 69 6d 61 67 65 2f	61 76 69 66 2c 69 6d 61	
Upgrade-Insecure-Requests: 1\r\n	01a0	67 65 2f 77 65 62 70 2c	69 6d 61 67 65 2f 61 70	
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/128.0	01b0	6e 67 2c 2e 2f 2a 3b 71	3d 30 2e 38 0d 0a 53 65	
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8	01c0	63 2d 47 50 43 3a 20 31	0d 0a 41 63 63 65 70 74	
Sec-EP: 1\r\n	01d0	2d 45 6e 63 6f 64 69 6e	67 3a 20 67 7a 69 70 2c	
Accept-Encoding: gzip, deflate\r\n	01e0	20 64 65 66 6c 61 74 65	0d 0a 41 63 63 65 70 74	
Accept-Language: en-GB,en;q=0.9,vi;q=0.8\r\n	01f0	2d 4c 61 6e 67 75 61 67	65 3a 20 65 6e 2d 47 42	
If-None-Match: "173-623c899d46afb"\r\n	0200	2c 65 6e 3b 71 3d 30 2e	39 2c 76 69 3b 71 3d 30	
If-Modified-Since: Sun, 06 Oct 2024 05:59:01 GMT\r\n	0210	2e 38 0d 0a 49 66 2d 4e	6f 6e 65 2d 4d 61 74 63	
\r\n	0220	68 3a 20 22 31 37 33 2d	36 32 33 63 38 39 39 64	
[Response in frame: 1369]	0230	34 36 61 66 62 2d 0d 0a	49 66 2d 4d 6f 64 69 66	
[Full request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file2.html]	0240	69 65 64 2d 53 69 6e 63	65 3a 20 53 75 6e 2c 20	
	0250	30 36 20 4f 63 74 20 32	30 32 34 20 30 35 3a 35	
	0260	39 3a 30 31 20 47 4d 54	0d 0a 0d 0a	

- Có, vì lần thứ 2 đã có cache

If-Modified-Since: Sun, 06 Oct 2024 05:59:01 GMT

## 10. Mã trạng thái HTTP được trả về từ server tương ứng với HTTP GET thứ 2 là gì? Ý nghĩa nó là gì? Server có thật sự gửi về nội dung của file hay không? Giải thích.

No.	Time	Source	Destination	Protocol	Length	Info
874	2.409913	192.168.28.24	128.119.245.12	HTTP	551	GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
941	2.679624	128.119.245.12	192.168.28.24	HTTP	784	HTTP/1.1 200 OK (text/html)
998	2.832389	192.168.28.24	128.119.245.12	HTTP	536	GET /favicon.ico HTTP/1.1
1131	3.100332	128.119.245.12	192.168.28.24	HTTP	538	HTTP/1.1 404 Not Found (text/html)
1316	4.137157	192.168.28.24	128.119.245.12	HTTP	620	GET /wireshark-labs/HTTP-wireshark-file2.html HTTP/1.1
1369	4.405443	128.119.245.12	192.168.28.24	HTTP	293	HTTP/1.1 304 Not Modified

  

Frame 1369: 293 bytes on wire (2344 bits), 293 bytes captured (2344 bits) on interface \Device\NPF... Ethernet II, Src: TplinkTechno... Dst: Intel_95:2d:88 (20:c1:9b:95:2d:88) Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.28.24 Transmission Control Protocol, Src Port: 80, Dst Port: 62901, Seq: 1215, Ack: 1546, Len: 239 Hypertext Transfer Protocol HTTP/1.1 304 Not Modified\r\n Date: Sun, 06 Oct 2024 12:53:09 GMT\r\n Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/7.4.33 mod_perl/2.0.11 Perl/v5.16.3\r\n Connection: Keep-Alive\r\n Keep-Alive: timeout=5, max=98\r\n ETag: "173-623c899d46afb"\r\n \r\n [Request in frame 1316] [Time since request: 0.268286000 seconds] [Request URI: /wireshark-labs/HTTP-wireshark-file2.html] [Full request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file2.html]	0000 20 c1 9b 95 2d 88 b0 95 8e 4e e8 5c 08 00 45 48 0010 01 17 35 2b 40 00 2b 06 c7 29 80 77 f5 0c c0 a8 0020 1c 18 00 50 f5 b5 68 ff 81 2e fa 46 aa 4a 50 18 0030 00 fe d5 39 00 00 48 54 54 50 2f 31 2e 31 20 33 0040 30 34 20 4e 6f 74 20 4d 6f 64 69 66 69 65 64 0d 0050 0a 44 61 74 65 3a 20 53 75 6e 2c 20 30 36 20 4f 0060 63 74 20 32 30 32 34 20 31 32 3a 35 33 3a 30 39 0070 20 47 4d 54 0d 0a 53 65 72 76 65 72 3a 20 41 70 0080 61 63 68 65 2f 32 2e 34 2e 36 20 28 43 65 6e 74 0090 4f 53 29 20 4f 70 65 6e 53 53 4c 2f 31 2e 30 2e 00a0 32 6b 2d 66 69 70 73 20 50 48 50 2f 37 2e 34 2e 00b0 33 33 20 6d 6f 64 5f 70 65 72 6c 2f 32 2e 30 2e 00c0 31 31 20 50 65 72 6c 2f 76 35 2e 31 36 2e 33 0d 00d0 0a 43 6f 6e 6e 65 63 74 69 6f 6e 3a 20 4b 65 65 00e0 70 2d 41 6c 69 76 65 0d 0a 4b 65 65 70 2d 41 6c 00f0 69 76 65 3a 20 74 69 6d 65 6f 75 74 3d 35 2e 20 0100 6d 61 78 3d 39 38 0d 0a 45 54 61 67 3a 20 22 31 0110 37 33 2d 36 32 33 63 38 39 39 64 34 36 61 66 62 0120 22 0d 0a 0d 0a
---	---

- Mã trạng thái trả về: **304 - Not Modified**, tức không có sự thay đổi về request so với trước đó
- Server không trả về HTML data vì đã có cache trước đó

## 3. Truy cập các trang dài

## 11. Trình duyệt đã gửi bao nhiêu HTTP GET? Dòng "THE BILL OF RIGHTS" được chứa trong gói tin phản hồi thứ mấy?

468	0.671166	192.168.28.24	128.119.245.12	TCP	54	63342 → 80 [FIN, ACK] Seq=1 Ack=1 Win=513 Len=0
469	0.671395	192.168.28.24	128.119.245.12	HTTP	551	GET /wireshark-labs/HTTP-wireshark-file3.html HTTP/1.1
726	1.195338	128.119.245.12	192.168.28.24	TCP	54	80 → 63343 [ACK] Seq=1 Ack=498 Win=237 Len=0
727	1.195338	128.119.245.12	192.168.28.24	TCP	1514	80 → 63343 [ACK] Seq=1 Ack=498 Win=237 Len=1460 [TCP PDU reassembled in 730]
728	1.195338	128.119.245.12	192.168.28.24	TCP	1514	80 → 63343 [ACK] Seq=1461 Ack=498 Win=237 Len=1460 [TCP PDU reassembled in 730]
729	1.195338	128.119.245.12	192.168.28.24	TCP	1514	80 → 63343 [ACK] Seq=2921 Ack=498 Win=237 Len=1460 [TCP PDU reassembled in 730]
730	1.195338	128.119.245.12	192.168.28.24	HTTP	535	HTTP/1.1 200 OK (text/html)
731	1.195428	192.168.28.24	128.119.245.12	TCP	54	63343 → 80 [ACK] Seq=498 Ack=4862 Win=513 Len=0
795	1.372613	192.168.28.24	128.119.245.12	TCP	54	[TCP Retransmission] 63342 → 80 [FIN, ACK] Seq=1 Ack=1 Win=513 Len=0
810	1.390684	192.168.28.24	128.119.245.12	HTTP	536	GET /favicon.ico HTTP/1.1
893	1.596222	192.168.28.24	35.174.80.46	TCP	55	63321 → 443 [ACK] Seq=1 Ack=1 Win=509 Len=1
920	1.689559	128.119.245.12	192.168.28.24	HTTP	538	HTTP/1.1 404 Not Found (text/html)
952	1.739009	192.168.28.24	128.119.245.12	TCP	54	63343 → 80 [ACK] Seq=980 Ack=5346 Win=511 Len=0

- Trình duyệt gửi 2 request GET
  - Gửi để lấy HTML data
  - Gửi lấy favicon
- Dòng "THE BILL OF RIGHTS" được chứa trong gói tin phản hồi thứ 2



No.	Time	Source	Destination	Protocol	Length	Info
441	0.618723	192.168.28.24	172.64.148.154	TCP	66	[TCP Dup ACK 383#1] 62942 → 443 [ACK] Seq=740 Ack=396 Win=512 Len=0 SLE=138 SRE=396
468	0.671166	192.168.28.24	128.119.245.12	TCP	54	63342 → 80 [FIN, ACK] Seq=1 Ack=1 Win=513 Len=0
469	0.671395	192.168.28.24	128.119.245.12	HTTP	551	GET /wireshark-labs/HTTP-wireshark-file3.html HTTP/1.1
726	1.195338	128.119.245.12	192.168.28.24	TCP	54	80 → 63343 [ACK] Seq=1 Ack=498 Win=237 Len=0
727	1.195338	128.119.245.12	192.168.28.24	TCP	1514	80 → 63343 [ACK] Seq=1 Ack=498 Win=237 Len=1460 [TCP PDU reassembled in 730]
728	1.195338	128.119.245.12	192.168.28.24	TCP	1514	80 → 63343 [ACK] Seq=1461 Ack=498 Win=237 Len=1460 [TCP PDU reassembled in 730]
729	1.195338	128.119.245.12	192.168.28.24	TCP	1514	80 → 63343 [ACK] Seq=2921 Ack=498 Win=237 Len=1460 [TCP PDU reassembled in 730]
730	1.195338	128.119.245.12	192.168.28.24	HTTP	535	HTTP/1.1 200 OK (text/html)
731	1.195428	192.168.28.24	128.119.245.12	TCP	54	63343 → 80 [ACK] Seq=498 Ack=4862 Win=513 Len=0
795	1.372613	192.168.28.24	128.119.245.12	TCP	54	[TCP Retransmission] 63342 → 80 [FIN, ACK] Seq=1 Ack=1 Win=513 Len=0
810	1.390684	192.168.28.24	128.119.245.12	HTTP	536	GET /favicon.ico HTTP/1.1
893	1.596222	192.168.28.24	35.174.80.46	TCP	55	63321 → 443 [ACK] Seq=1 Ack=1 Win=509 Len=1
920	1.689559	128.119.245.12	192.168.28.24	HTTP	538	HTTP/1.1 404 Not Found (text/html)
952	1.739009	192.168.28.24	128.119.245.12	TCP	54	63343 → 80 [ACK] Seq=980 Ack=5346 Win=511 Len=0
1294	2.479329	192.168.28.24	192.168.28.108	TCP	164	63244 → 8009 [PSH, ACK] Seq=1 Ack=1 Win=511 Len=110
1295	2.483486	192.168.28.108	192.168.28.24	TCP	164	8009 → 63244 [PSH, ACK] Seq=1 Ack=111 Win=1643 Len=110
1309	2.533902	192.168.28.24	192.168.28.108	TCP	54	63244 → 8009 [ACK] Seq=111 Ack=111 Win=510 Len=0
1347	2.662098	192.168.28.24	128.119.245.12	TCP	54	[TCP Retransmission] 63342 → 80 [FIN, ACK] Seq=1 Ack=1 Win=513 Len=0

  

Sequence Number: 1 (relative sequence number)	00e0	74 20 32 30 32 34 20 30 35 3a 35 39 3a 30 31 20	t 2024 0 5:59:01
Sequence Number (raw): 3420427623	00f0	47 4d 54 0d 0a 45 54 61 67 3a 20 22 31 31 39 34	GMT-ETag: "1194
[Next Sequence Number: 1461 (relative sequence number)]	0100	2d 36 32 33 63 38 39 39 64 34 33 34 62 22 0d	-623c899 d434ab"
Acknowledgment Number: 498 (relative ack number)	0110	0a 41 63 63 65 70 74 2d 52 61 6e 67 65 73 3a 28	-Accept-Range:
Acknowledgment number (raw): 4078135563	0120	62 79 74 65 73 0d 0a 43 6f 6e 74 65 6e 74 2d 4c	bytes-C ontent-L
0101 .... = Header Length: 20 bytes (5)	0130	65 6e 67 74 68 3a 20 34 35 30 0d 0a 4b 65 65	length: 4 500-kee
Flags: 0x010 (ACK)	0140	70 2d 41 6c 69 76 65 3a 20 74 69 6d 65 6f 75 74	p-Alive: timeout
Window: 237	0150	3d 35 2c 20 6d 61 78 3d 31 30 30 0d 0a 43 6f 6e	=5, max= 100-Con
[Calculated window size: 237]	0160	6e 65 63 74 69 6f 6e 3a 20 4b 65 65 70 2d 41 6c	nnection: keep-al
[Window size scaling factor: -1 (unknown)]	0170	69 76 65 0d 0a 43 6f 6e 74 65 6e 74 2d 54 79 70	live-Con tent Typ
Checksum: 0x284f [unverified]	0180	65 3a 20 74 65 78 74 2f 68 74 6d 6c 3b 20 63 6e	e: text/html; ch
[Checksum Status: Unverified]	0190	61 72 73 65 74 3d 55 54 46 2d 38 0d 0a 0d 0a 3c	arset-UT F-8-...
Urgent Pointer: 0	01a0	68 74 6d 6c 3e 3c 68 65 61 64 3e 20 0a 3c 74 69	html>che ad> <ti
[Timestamps]	01b0	74 6e 65 3e 48 69 73 74 6f 72 69 63 61 6c 20 44	tbody<tr><td>0
[Time since first frame in this TCP stream: 0.523943000 seconds]	01c0	6f 63 75 6d 65 6e 74 71 3a 54 48 45 20 42 49 4c	Comments<THE BIT
[Time since previous frame in this TCP stream: 0.000000000 seconds]	01d0	4c 20 4f 4e 20 52 49 4f 48 54 53 3c 2f 74 69 74	OF RIG HTSc<tit
[SEQ/ACK analysis]	01e0	6c 65 3e 3c 2f 68 65 61 64 3e 0a 0a 3c 62 6f	hex>nea d>...c
TCP payload (1460 bytes)	01f0	64 79 20 62 67 63 6f 6c 6f 72 3d 22 23 66 66 66	dy bgcol or="#fff
[Reassembled PDU in frame 730]	0200	66 66 66 22 20 6c 69 6e 6b 3d 22 23 33 33 30 38	fff" lin k="#300
TCP segment data (1460 bytes)	0210	30 30 22 20 76 6c 69 6e 6b 3d 22 23 36 36 36 36	00" vlin k="#6666
	0220	33 33 22 3a 0a 3c 70 3c 3c 62 72 3a 0a 3c 2f 70	33"><p> <p>
	0230	3e 0a 3c 70 3c 2f 70 3e 3c 63 65 6e 74 65 72	><p><p></center

## 12. Gói tin phản hồi thứ mấy chứa mã trạng thái và ý nghĩa của nó?

No.	Time	Source	Destination	Protocol	Length	Info
441	0.618723	192.168.28.24	172.64.148.154	TCP	66	[TCP Dup ACK 383#1] 62942 → 443 [ACK] Seq=740 Ack=396 Win=512 Len=0 SLE=138 SRE=396
468	0.671166	192.168.28.24	128.119.245.12	TCP	54	63342 → 80 [FIN, ACK] Seq=1 Ack=1 Win=513 Len=0
469	0.671395	192.168.28.24	128.119.245.12	HTTP	551	GET /wireshark-labs/HTTP-wireshark-file3.html HTTP/1.1
726	1.195338	128.119.245.12	192.168.28.24	TCP	54	80 → 63343 [ACK] Seq=1 Ack=498 Win=237 Len=0
727	1.195338	128.119.245.12	192.168.28.24	TCP	1514	80 → 63343 [ACK] Seq=1 Ack=498 Win=237 Len=1460 [TCP PDU reassembled in 730]
728	1.195338	128.119.245.12	192.168.28.24	TCP	1514	80 → 63343 [ACK] Seq=1461 Ack=498 Win=237 Len=1460 [TCP PDU reassembled in 730]
729	1.195338	128.119.245.12	192.168.28.24	TCP	1514	80 → 63343 [ACK] Seq=2921 Ack=498 Win=237 Len=1460 [TCP PDU reassembled in 730]
730	1.195338	128.119.245.12	192.168.28.24	HTTP	535	HTTP/1.1 200 OK (text/html)
731	1.195428	192.168.28.24	128.119.245.12	TCP	54	63343 → 80 [ACK] Seq=498 Ack=4862 Win=513 Len=0
795	1.372613	192.168.28.24	128.119.245.12	TCP	54	[TCP Retransmission] 63342 → 80 [FIN, ACK] Seq=1 Ack=1 Win=513 Len=0
810	1.390684	192.168.28.24	128.119.245.12	HTTP	536	GET /favicon.ico HTTP/1.1
893	1.596222	192.168.28.24	35.174.80.46	TCP	55	63321 → 443 [ACK] Seq=1 Ack=1 Win=509 Len=1
920	1.689559	128.119.245.12	192.168.28.24	HTTP	538	HTTP/1.1 404 Not Found (text/html)
952	1.739009	192.168.28.24	128.119.245.12	TCP	54	63343 → 80 [ACK] Seq=980 Ack=5346 Win=511 Len=0
1294	2.479329	192.168.28.24	192.168.28.108	TCP	164	63244 → 8009 [PSH, ACK] Seq=1 Ack=1 Win=511 Len=110
1295	2.483486	192.168.28.108	192.168.28.24	TCP	164	8009 → 63244 [PSH, ACK] Seq=1 Ack=111 Win=1643 Len=110
1309	2.533902	192.168.28.24	192.168.28.108	TCP	54	63244 → 8009 [ACK] Seq=111 Ack=111 Win=510 Len=0
1347	2.662098	192.168.28.24	128.119.245.12	TCP	54	[TCP Retransmission] 63342 → 80 [FIN, ACK] Seq=1 Ack=1 Win=513 Len=0

  

Sequence Number: 1 (relative sequence number)	0000	20 c1 9b 95 2d 88 b0 95 8e 4a 8e 5c 08 00 45 48	... N \ EH
Sequence Number (raw): 3420427623	0010	05 dc ed f1 40 00 2b 06 12 5e 80 77 f5 0c 09 a8	... 0 + ... w
[Next Sequence Number: 1461 (relative sequence number)]	0020	1c 18 00 50 f7 6f cb df 95 67 f3 13 69 0b 50 10	... P o ... g . i . P
Acknowledgment Number: 498 (relative ack number)	0030	00 ed 28 4f 00 00 48 54 54 50 2f 31 2e 31 20 32	... (O HT TP/1.1 2
Acknowledgment number (raw): 4078135563	0040	30 30 20 4f 4b 0d 0a 44 61 74 65 3a 20 53 75 6e	00 OK -> Date: Sun
0101 .... = Header Length: 20 bytes (5)	0050	2c 20 30 36 20 4f 63 74 20 32 30 32 34 20 31 33	y 06 Oct 2024 13
Flags: 0x010 (ACK)	0060	3a 33 38 3a 30 34 20 47 4d 54 0d 0a 53 65 72 76	138:04 G MT- Serv
Window: 237	0070	65 72 3a 00 41 70 61 63 68 65 2f 32 2e 24 2e 38	er: Apac he/2.4.8
[Calculated window size: 237]	0080	20 28 43 65 6a 74 4f 53 20 08 4f 70 65 6e 53 53	(ContOS ) OpenS5
[Window size scaling factor: -1 (unknown)]	0090	4c 2f 31 2e 30 2e 32 6b 2d 66 69 70 73 20 50 48	L/1.0.2k -fips PH
Checksum: 0x284f [unverified]	00a0	50 2f 37 2e 34 2e 33 33 20 6d 6f 64 5f 70 65 72	P/7.4.33 mod_per
[Checksum Status: Unverified]	00b0	6c 2f 32 2e 30 2e 31 31 20 50 65 72 6c 2f 76 35	1/2.0.11 Per1/vS
Urgent Pointer: 0	00c0	2e 31 36 2e 33 0d 0a 4c 61 73 2d 4d 6f 64 69	16.3-.L ast-Modi
[Timestamps]	00d0	66 69 65 64 3a 20 53 75 6e 2c 20 30 36 20 4f 63	fied: Su n, 06 Oc
[Time since first frame in this TCP stream: 0.523943000 seconds]	00e0	74 20 32 30 32 34 20 30 35 3a 35 39 3a 30 31 20	t 2024 0 5:59:01
[Time since previous frame in this TCP stream: 0.000000000 seconds]	00f0	47 4d 54 0d 0a 45 54 61 67 3a 20 22 31 31 39 34	GMT-ETa g: "1194
[SEQ/ACK analysis]	0100	2d 36 32 33 63 38 39 39 64 34 33 34 62 22 0d	-623c899 d434ab"
TCP payload (1460 bytes)	0110	0a 41 63 63 65 70 74 2d 52 61 6e 67 65 73 3a 28	-Accept-Range:
[Reassembled PDU in frame 730]	0120	62 79 74 65 73 0d 0a 43 6f 6e 74 65 6e 74 2d 4c	bytes-C ontent-L
TCP segment data (1460 bytes)	0130	65 6e 67 74 68 3a 20 34 35 30 0d 0a 4b 65 65	length: 4 500-kee
	0140	70 2d 41 6c 69 76 65 3a 20 74 69 6d 65 6f 75 74	p-Alive: timeout
	0150	3d 35 2c 20 6d 61 78 3d 31 30 30 0d 0a 43 6f 6e	=5, max= 100-Con

- Gói tin phản hồi thứ 2 chứa mã trạng thái
- Ý nghĩa là đã thành công lấy data, chia thành các segment TCP gửi đến client

## 13. Mã trạng thái và ý nghĩa của HTTP response là gì?

No.	Time	Source	Destination	Protocol	Length Info
441	0.618723	192.168.28.24	172.64.148.154	TCP	66 [TCP Dup ACK 383#1] 62942 → 443 [ACK] Seq=740 Ack=396 Win=512 Len=0 SLE=138 SRE=396
468	0.671166	192.168.28.24	128.119.245.12	TCP	54 63342 → 80 [FIN, ACK] Seq=1 Ack=1 Win=513 Len=0
469	0.671395	192.168.28.24	128.119.245.12	HTTP	551 GET /wireshark-labs/HTTP-wireshark-file3.html HTTP/1.1
726	1.195338	128.119.245.12	192.168.28.24	TCP	54 80 → 63343 [ACK] Seq=1 Ack=498 Win=237 Len=0
727	1.195338	128.119.245.12	192.168.28.24	TCP	1514 80 → 63343 [ACK] Seq=1 Ack=498 Win=237 Len=1460 [TCP PDU reassembled in 730]
728	1.195338	128.119.245.12	192.168.28.24	TCP	1514 80 → 63343 [ACK] Seq=2921 Ack=498 Win=237 Len=1460 [TCP PDU reassembled in 730]
730	1.195338	128.119.245.12	192.168.28.24	HTTP	535 HTTP/1.1 200 OK (text/html)
731	1.195428	192.168.28.24	128.119.245.12	TCP	54 63343 → 80 [ACK] Seq=498 Ack=4862 Win=513 Len=0
795	1.372613	192.168.28.24	128.119.245.12	TCP	54 [TCP Retransmission] 63342 → 80 [FIN, ACK] Seq=1 Ack=1 Win=513 Len=0
810	1.390684	192.168.28.24	128.119.245.12	HTTP	536 GET /favicon.ico HTTP/1.1
893	1.596222	192.168.28.24	35.174.80.46	TCP	55 63321 → 443 [ACK] Seq=1 Ack=1 Win=509 Len=1
920	1.689559	128.119.245.12	192.168.28.24	HTTP	538 HTTP/1.1 404 Not Found (text/html)
952	1.739009	192.168.28.24	128.119.245.12	TCP	54 63343 → 80 [ACK] Seq=980 Ack=5346 Win=511 Len=0
1294	2.479329	192.168.28.24	192.168.28.108	TCP	164 83244 → 8009 [PSH, ACK] Seq=1 Ack=11 Win=511 Len=110
1295	2.483486	192.168.28.108	192.168.28.24	TCP	164 8009 → 63244 [PSH, ACK] Seq=1 Ack=111 Win=1643 Len=110
1309	2.533902	192.168.28.24	192.168.28.108	TCP	54 63244 → 8009 [ACK] Seq=111 Ack=111 Win=510 Len=0
1347	2.662098	192.168.28.24	128.119.245.12	TCP	54 [TCP Retransmission] 63342 → 80 [FIN, ACK] Seq=1 Ack=1 Win=513 Len=0

  

[Reassembled TCP Data [...]: 485454502f312e3120323030204f4b0d0a46174653a2053756e2c203036204f6374203;					0000	20 c1 9b 95 2d 88 b0 95	8e 4e e8 5c 08 00 45 48	----- N \- EH
Hypertext Transfer Protocol					0010	02 09 e4 f4 40 00 2b 06	16 6e 80 77 f5 0c c0 a8	---@+-- n w---
HTTP/1.1 200 OK (text/html)					0020	1c 18 00 50 f7 6f cb df	a6 83 f3 13 69 0b 50 18	---P o--- i P-
Date: Sun, 06 Oct 2024 13:38:04 GMT\r\n					0030	00 ed 79 96 00 00 68 6d	65 6e 74 73 20 69 6e 66	---y- h m ents inf
Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/7.4.33 mod_perl/2.0.11 Perl/v5.16.3\r\n					0040	6c 69 63 74 65 64 2e 0a	0a 3c 2f 70 3e 3c 70 3e	l icted.- </p><p>
Last-Modified: Sun, 06 Oct 2024 05:59:01 GMT\r\n					0050	3c 61 20 6e 61 6d 65 3d	22 39 22 3e 3c 73 74 72	<a name="9"><str
ETag: "1194-623c899d4344b"\r\n					0060	6f 6e 67 3e 3c 68 33 3e	41 6d 65 6e 64 6d 65 6e	ong<h3> Amendmen
Accept-Ranges: bytes\r\n					0070	74 20 49 58 3c 2f 68 33	3e 3c 2f 73 74 72 6f 6e	t IX</h3> </>stron
Content-Length: 4500\r\n					0080	67 3e 3c 2f 61 3e 0a 0a	3c 70 3e 3c 2f 70 3e 3c	g< /> < /> < /> < />
Keep-Alive: timeout=5, max=100\r\n					0090	70 3e 54 68 65 20 65 6e	75 6d 65 72 61 74 69 6f	p>The en umaratio
Connection: Keep-Alive\r\n					00a0	6e 20 69 6e 20 74 68 65	20 43 6f 6e 73 74 69 74	n in the Constit
Content-Type: text/html; charset=UTF-8\r\n					00b0	75 74 69 6f 6e 2c 20 6f	66 20 63 65 72 74 61 69	ution, o f certai
[Request in frame: 465]					00c0	6e 20 72 69 67 68 74 73	2c 20 73 68 61 6c 6c 0a	n rights , shall
[Time since request: 0.523943000 seconds]					00d0	6e 6f 74 20 62 65 20 63	6f 6e 73 74 72 75 65 64	not be c onstrued
[Request URI: /wireshark-labs/HTTP-wireshark-file3.html]					00e0	20 74 6f 20 64 65 6e 79	20 6f 72 20 64 69 73 70	to deny or disp
[Full request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file3.html]					00f0	61 72 61 67 65 20 6f 74	68 65 72 73 20 72 65 74	arage ot hers ret
File Data: 4500 bytes					0100	61 69 6e 65 64 20 62 79	20 74 68 65 20 70 65 6f	ained by the peo
Line-based text data: text/html (98 lines)					0110	70 6c 65 2e 0a 0a 3c 2f	70 3e 3c 70 3e 3c 61 20	ple.- </ p><p>a
					0120	6e 61 6d 65 3d 22 31 30	22 3e 3c 73 74 72 6f 6e	name="10 "><stron
					0130	67 3e 3c 68 33 3e 41 6d	65 6e 64 6d 65 6e 74 20	g>h3>Am endment

- Mã trạng thái: 200 OK (thành công lấy data từ server)

## 14. Cần bao nhiêu TCP segments để chứa hết HTTP response và nội dung của The Bill of Rights?

- 4 segment

No.	Time	Source	Destination	Protocol	Length Info
441	0.618723	192.168.28.24	172.64.148.154	TCP	66 [TCP Dup ACK 383#1] 62942 → 443 [ACK] Seq=740 Ack=396 Win=512 Len=0 SLE=138 SRE=396
468	0.671166	192.168.28.24	128.119.245.12	TCP	54 63342 → 80 [FIN, ACK] Seq=1 Ack=1 Win=513 Len=0
469	0.671395	192.168.28.24	128.119.245.12	HTTP	551 GET /wireshark-labs/HTTP-wireshark-file3.html HTTP/1.1
726	1.195338	128.119.245.12	192.168.28.24	TCP	54 80 → 63343 [ACK] Seq=1 Ack=498 Win=237 Len=0
727	1.195338	128.119.245.12	192.168.28.24	TCP	1514 80 → 63343 [ACK] Seq=1 Ack=498 Win=237 Len=1460 [TCP PDU reassembled in 730]
728	1.195338	128.119.245.12	192.168.28.24	TCP	1514 80 → 63343 [ACK] Seq=1461 Ack=498 Win=237 Len=1460 [TCP PDU reassembled in 730]
729	1.195338	128.119.245.12	192.168.28.24	TCP	1514 80 → 63343 [ACK] Seq=2921 Ack=498 Win=237 Len=1460 [TCP PDU reassembled in 730]
730	1.195338	128.119.245.12	192.168.28.24	HTTP	535 HTTP/1.1 200 OK (text/html)
731	1.195428	192.168.28.24	128.119.245.12	TCP	54 63343 → 80 [ACK] Seq=498 Ack=4862 Win=513 Len=0
795	1.372613	192.168.28.24	128.119.245.12	TCP	54 [TCP Retransmission] 63342 → 80 [FIN, ACK] Seq=1 Ack=1 Win=513 Len=0
810	1.390684	192.168.28.24	128.119.245.12	HTTP	536 GET /favicon.ico HTTP/1.1
893	1.596222	192.168.28.24	35.174.80.46	TCP	55 63321 → 443 [ACK] Seq=1 Ack=1 Win=509 Len=1
920	1.689559	128.119.245.12	192.168.28.24	HTTP	538 HTTP/1.1 404 Not Found (text/html)
952	1.739009	192.168.28.24	128.119.245.12	TCP	54 63343 → 80 [ACK] Seq=980 Ack=5346 Win=511 Len=0
1294	2.479329	192.168.28.24	192.168.28.108	TCP	164 83244 → 8009 [PSH, ACK] Seq=1 Ack=11 Win=511 Len=110
1295	2.483486	192.168.28.108	192.168.28.24	TCP	164 8009 → 63244 [PSH, ACK] Seq=1 Ack=111 Win=1643 Len=110
1309	2.533902	192.168.28.24	192.168.28.108	TCP	54 63244 → 8009 [ACK] Seq=111 Ack=111 Win=510 Len=0
1347	2.662098	192.168.28.24	128.119.245.12	TCP	54 [TCP Retransmission] 63342 → 80 [FIN, ACK] Seq=1 Ack=1 Win=513 Len=0

  

[Time since first frame in this TCP stream: 0.523943000 seconds]					0000	20 c1 9b 95 2d 88 b0 95	8e 4e e8 5c 08 00 45 48	----- N \- EH
[Time since previous frame in this TCP stream: 0.000000000 seconds]					0010	02 09 e4 f4 40 00 2b 06	16 6e 80 77 f5 0c c0 a8	---@+-- n w---
[SEQ/ACK analysis]					0020	1c 18 00 50 f7 6f cb df	a6 83 f3 13 69 0b 50 18	---P o--- i P-
TCP payload (481 bytes)					0030	00 ed 79 96 00 00 68 6d	65 6e 74 73 20 69 6e 66	---y- h m ents inf
TCP segment data (481 bytes)					0040	6c 69 63 74 65 64 2e 0a	0a 3c 2f 70 3e 3c 70 3e	l icted.- </p><p>
[4 Reassembled TCP Segments (4061 bytes): #727(1460), #728(1460), #729(1460), #730(481)]					0050	3c 61 20 6e 61 6d 65 3d	22 39 22 3e 3c 73 74 72	<a name="9"><str
[Frame: 727, payload: 0-159 (1460 bytes)]					0060	6f 6e 67 3e 3c 68 33 3e	41 6d 65 6e 64 6d 65 6e	ong<h3> Amendmen
[Frame: 728, payload: 1460-2919 (1460 bytes)]					0070	74 20 49 58 3c 2f 68 33	3e 3c 2f 73 74 72 6f 6e	t IX</h3> </>stron
[Frame: 729, payload: 2920-4379 (1460 bytes)]					0080	67 3e 3c 2f 61 3e 0a 0a	3c 70 3e 3c 2f 70 3e 3c	g< /> < /> < /> < />
[Frame: 730, payload: 4380-4860 (481 bytes)]					0090	70 3e 54 68 65 20 65 6e	75 6d 65 72 61 74 69 6f	p>The en umaratio
[Segment count: 4]					00a0	6e 20 69 6e 20 74 68 65	20 43 6f 6e 73 74 69 74	n in the Constit
[Reassembled TCP length: 4861]					00b0	75 74 69 6f 6e 2c 20 6f	66 20 63 65 72 74 61 69	ution, o f certai
[Reassembled TCP Data [...]: 485454502f312e3120323030204f4b0d0a46174653a2053756e2c203036204f6374203;					00c0	6e 20 72 69 67 68 74 73	2c 20 73 68 61 6c 6c 0a	n rights , shall
Hypertext Transfer Protocol					00d0	6e 6f 74 20 62 65 20 63	6f 6e 73 74 72 75 65 64	not be c onstrued
HTTP/1.1 200 OK (text/html)					00e0	20 74 6f 20 64 65 6e 79	20 6f 72 20 64 69 73 70	to deny or disp
Date: Sun, 06 Oct 2024 13:38:04 GMT\r\n					00f0	61 72 61 67 65 20 6f 74	68 65 72 73 20 72 65 74	arage ot hers ret
Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/7.4.33 mod_perl/2.0.11 Perl/v5.16.3\r\n					0100	61 69 6e 65 64 20 62 79	20 74 68 65 20 70 65 6f	ained by the peo
Last-Modified: Sun, 06 Oct 2024 05:59:01 GMT\r\n					0110	70 6c 65 2e 0a 0a 3c 2f	70 3e 3c 70 3e 3c 61 20	ple.- </ p><p>a
ETag: "1194-623c899d4344b"\r\n					0120	6e 61 6d 65 3d 22 31 30	22 3e 3c 73 74 72 6f 6e	name="10 "><stron
Accept-Ranges: bytes\r\n					0130	67 3e 3c 68 33 3e 41 6d	65 6e 64 6d 65 6e 74 20	g>h3>Am endment

## 4. Văn bản HTML có chứa các đối tượng

## 15. Trình duyệt đã gửi bao nhiêu HTTP GET? Đến những địa chỉ IP nào?



No.	Time	Source	Destination	Protocol	Length	Info
429	0.758299	192.168.28.24	128.119.245.12	HTTP	551	GET /wireshark-labs/HTTP-wireshark-file4.html HTTP/1.1
519	1.024222	128.119.245.12	192.168.28.24	HTTP	1355	HTTP/1.1 200 OK (text/html)
541	1.082053	192.168.28.24	128.119.245.12	HTTP	536	GET /pearson.png HTTP/1.1
542	1.082589	192.168.28.24	178.79.137.164	HTTP	503	GET /8E_cover_small.jpg HTTP/1.1
646	1.317783	178.79.137.164	192.168.28.24	HTTP	225	HTTP/1.1 301 Moved Permanently
660	1.344485	128.119.245.12	192.168.28.24	HTTP	745	HTTP/1.1 200 OK (PNG)
1506	2.960766	192.168.28.24	128.119.245.12	HTTP	536	GET /favicon.ico HTTP/1.1
1587	3.230216	128.119.245.12	192.168.28.24	HTTP	538	HTTP/1.1 404 Not Found (text/html)

- Trình duyệt gửi tổng cộng 4 request GET tới server
  - Lấy HTML data website
  - Lấy ảnh **person.png**
  - Lấy ảnh **8E\_cover\_small.jpg**
  - Lấy favicon
- Các IP trình duyệt gửi HTTP GET đến
  - 128.119.245.12 (*server chính*)
  - 178.79.137.164 (*server chứa ảnh bên ngoài - 8E\_cover\_small.jpg*)

## 16. Trình duyệt download các file hình ảnh này tuần tự hay song song? Giải thích?

- Song song, vì trình duyệt và server sử dụng HTTP version 1.1, đồng thời 2 file ảnh được gửi từ trình duyệt theo 2 port khác nhau
  - person.png - source port **63670**

No.	Time	Source	Destination	Protocol	Length	Info
429	0.758299	192.168.28.24	128.119.245.12	HTTP	551	GET /wireshark-labs/HTTP-wireshark-file4.html HTTP/1.1
519	1.024222	128.119.245.12	192.168.28.24	HTTP	1355	HTTP/1.1 200 OK (text/html)
541	1.082053	192.168.28.24	128.119.245.12	HTTP	536	GET /pearson.png HTTP/1.1
542	1.082589	192.168.28.24	178.79.137.164	HTTP	503	GET /8E_cover_small.jpg HTTP/1.1
646	1.317783	178.79.137.164	192.168.28.24	HTTP	225	HTTP/1.1 301 Moved Permanently
660	1.344485	128.119.245.12	192.168.28.24	HTTP	745	HTTP/1.1 200 OK (PNG)
1506	2.960766	192.168.28.24	128.119.245.12	HTTP	536	GET /favicon.ico HTTP/1.1
1587	3.230216	128.119.245.12	192.168.28.24	HTTP	538	HTTP/1.1 404 Not Found (text/html)

  

Frame 541: 536 bytes on wire (4288 bits), 536 bytes captured (4288 bits) on interface \Device\NPF_{2B84...}	0020 f5 0c f8 b6 00 50 c7 07 fc b2 c4 32 5a 09 50 18 ...Pos...22:P
Ethernet II, Src: Intel_95:2d:88 (20:c1:9b:95:2d:88), Dst: TpLinkTechno_4e:e8:5c (b0:95:8e:4e:e8:5c)	0030 01 fc 54 41 00 00 47 45 54 20 2f 70 65 61 72 73 ...IA..GE T /pear
Internet Protocol Version 4, Src: 192.168.28.24, Dst: 128.119.245.12	0040 6f 6e 2e 70 6e 67 20 48 54 54 50 2f 31 2e 31 0d ...on.png H TTP/1.1
Transmission Control Protocol, Src Port: 63670, Dst Port: 80, Seq: 498, Ack: 1302, Len: 482	0050 0a 48 6f 73 74 3a 20 67 61 69 61 2e 63 73 2e 75 ...Host: g aia.cs.u
Hypertext Transfer Protocol	0060 6d 61 73 73 2e 65 64 75 0d 0a 43 6f 6e 6e 65 63 ...mass.edu . Conne
	0070 74 69 6f 6e 3a 20 6b 65 65 78 2d 61 6c 69 76 65 ...tion: ke en-alive

- 8E\_cover\_small.jpg - source port **63672**

No.	Time	Source	Destination	Protocol	Length	Info
429	0.758299	192.168.28.24	128.119.245.12	HTTP	551	GET /wireshark-labs/HTTP-wireshark-file4.html HTTP/1.1
519	1.024222	128.119.245.12	192.168.28.24	HTTP	1355	HTTP/1.1 200 OK (text/html)
541	1.082053	192.168.28.24	128.119.245.12	HTTP	536	GET /pearson.png HTTP/1.1
542	1.082589	192.168.28.24	178.79.137.164	HTTP	503	GET /8E_cover_small.jpg HTTP/1.1
646	1.317783	178.79.137.164	192.168.28.24	HTTP	225	HTTP/1.1 301 Moved Permanently
660	1.344485	128.119.245.12	192.168.28.24	HTTP	745	HTTP/1.1 200 OK (PNG)
1506	2.960766	192.168.28.24	128.119.245.12	HTTP	536	GET /favicon.ico HTTP/1.1
1587	3.230216	128.119.245.12	192.168.28.24	HTTP	538	HTTP/1.1 404 Not Found (text/html)

  

4	Frame 542: 503 bytes on wire (4024 bits), 503 bytes captured (4024 bits) on interface \Device\NPF_{28B4...}	0020	89 a4 f8 b8 00 50 22 2a 60 88 3e 09 f1 91 50 18	HTTP/1.1 301 Moved Permanently
	Ethernet II, Src: Intel_95:2d:88 (20:ci:9b:95:2d:88), Dst: TplinkTechno_4e:e8:5c (b0:95:8e:4e:e8:5c)	0030	02 01 1a 90 00 00 47 45 54 20 2f 38 45 5f 63 6f	HTTP/1.1 301 Moved Permanently
	Internet Protocol Version 4, Src: 192.168.28.24, Dst: 178.79.137.164	0040	76 65 72 5f 73 6d 61 6c 6c 2e 6a 70 67 20 48 54	HTTP/1.1 301 Moved Permanently
	Transmission Control Protocol, Src Port: 63672, Dst Port: 80, Seq: 1, Ack: 1, Len: 449	0050	54 50 2f 31 2e 31 0d 0a 48 6f 73 74 3a 20 6b 75	HTTP/1.1 301 Moved Permanently
	Hypertext Transfer Protocol	0060	72 6f 73 65 2e 63 73 6c 61 73 68 2e 6e 65 74 0d	HTTP/1.1 301 Moved Permanently

## 5. Chứng thực HTTP

### 17. Mã trạng thái và ý nghĩa nó trong HTTP response tương ứng với HTTP GET đầu tiên là gì?

No.	Time	Source	Destination	Protocol	Length	Info
1198	2.775034	192.168.28.24	128.119.245.12	HTTP	570	GET /wireshark-labs/protected_pages/HTTP-wireshark-%20file5.html HTTP/1.1
1308	3.043987	128.119.245.12	192.168.28.24	HTTP	771	HTTP/1.1 401 Unauthorized (text/html)
2561	6.762650	192.168.28.24	128.119.245.12	HTTP	612	GET /wireshark-labs/protected_pages/HTTP-wireshark-%20file5.html HTTP/1.1
2659	7.033967	128.119.245.12	192.168.28.24	HTTP	504	HTTP/1.1 404 Not Found (text/html)
2825	7.432150	192.168.28.24	128.119.245.12	HTTP	555	GET /favicon.ico HTTP/1.1
2897	7.697680	128.119.245.12	192.168.28.24	HTTP	538	HTTP/1.1 404 Not Found (text/html)

- 401 - Unauthorized
- Ý nghĩa: Yêu cầu tài khoản đăng nhập để xác thực

### 18. Khi nào trình duyệt gửi HTTP GET lần thứ 2, trường dữ liệu nào mới nào xuất hiện trong HTTP GET?

- Trình duyệt gửi HTTP GET lần 2 khi đã đăng nhập tài khoản (*thành công*)

http					
No.	Time	Source	Destination	Protocol	Length Info
1198	2.775034	192.168.28.24	128.119.245.12	HTTP	570 GET /wireshark-labs/protected_pages/HTTP-wireshark-%20file5.html HTTP/1.1
1308	3.843987	128.119.245.12	192.168.28.24	HTTP	771 HTTP/1.1 401 Unauthorized (text/html)
2561	6.762650	192.168.28.24	128.119.245.12	HTTP	612 GET /wireshark-labs/protected_pages/HTTP-wireshark-%20file5.html HTTP/1.1
2659	7.033967	128.119.245.12	192.168.28.24	HTTP	584 HTTP/1.1 404 Not Found (text/html)
2825	7.432150	192.168.28.24	128.119.245.12	HTTP	555 GET /favicon.ico HTTP/1.1
2897	7.697680	128.119.245.12	192.168.28.24	HTTP	538 HTTP/1.1 404 Not Found (text/html)

  

<div> <div>Timestamps</div> <div> [Time since first frame in this TCP stream: 4.325585000 seconds]  [Time since previous frame in this TCP stream: 3.665080000 seconds] </div> </div> <div> <div>SEQ/ACK analysis</div> <div>TCP payload (558 bytes)</div> </div> <div> <div>Hypertext Transfer Protocol</div> <div> GET /wireshark-labs/protected_pages/HTTP-wireshark-%20file5.html HTTP/1.1\r\n Host: gaia.cs.umass.edu\r\n Connection: keep-alive\r\n Cache-Control: max-age=0\r\n Authorization: Basic d2lyZXNoYXJrLXN0dWRlbnRzM5ldHdvcms=\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/118.0.0.0 Safari/537.36\r\n Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;*\r\n Accept-Encoding: gzip, deflate\r\n Accept-Language: en-GB,en;q=0.9,vi;q=0.8\r\n \r\n [Response in frame: 2659] </div> </div>	<div> 00c0 20 6d 61 78 2d 61 67 65 3d 30 0d 0a 41 75 74 68 max-age =0..Auth  00d0 6f 72 69 7a 61 74 69 6f 6e 3a 20 42 61 73 69 63 orization: Basic  00e0 20 64 32 6c 79 5a 58 4e 6f 59 58 4a 72 4c 58 4e d2lyZXNoYXJrLXN0dWRlbnRzM5ldHdvcms=\r\n 00f0 30 64 57 52 6c 62 6e 52 7a 4f 6d 35 6c 64 48 64 0dWRlbnRzM5ldHdvcms=\r\n 0100 76 63 64 73 3d 0d 0a 55 70 67 72 61 64 65 2d 49 Upgrade-Insecure-Requests: 1\r\n 0110 6e 73 65 63 75 72 65 2d 52 65 71 75 65 73 74 73 : 1..User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/118.0.0.0 Safari/537.36\r\n 0120 3a 20 31 0d 0a 55 73 65 72 2d 41 67 65 6e 74 3a \r\n 0130 20 4d 6f 7a 69 6c 6c 61 2f 35 2e 30 20 28 57 69 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;*\r\n 0140 6e 64 6f 77 73 20 4e 54 20 31 30 2e 30 3b 20 57 Accept-Encoding: gzip, deflate\r\n 0150 69 6e 36 34 3b 20 78 36 34 29 20 41 70 70 6c 65 Accept-Language: en-GB,en;q=0.9,vi;q=0.8\r\n 0160 57 65 62 4b 69 74 2f 35 33 37 2e 33 36 20 28 4b \r\n 0170 48 54 4d 4c 2c 20 6c 69 6b 65 20 47 65 63 6b 6f \r\n 0180 29 20 43 68 72 6f 6d 65 2f 31 32 38 2e 30 2e 30 \r\n 0190 2e 30 20 53 61 66 61 72 69 2f 35 33 37 2e 33 36 \r\n 01a0 0d 0a 41 63 63 65 70 74 3a 20 7a 65 78 74 2f 68 \r\n 01b0 74 6d 6c 2c 61 70 70 6c 69 63 61 74 69 6f 6e 2f \r\n 01c0 78 68 74 6d 6c 2b 78 6d 6c 2c 61 70 70 6c 69 63 \r\n 01d0 61 74 69 6f 6e 2f 78 6d 6c 3b 71 3d 30 2e 39 2c \r\n 01e0 69 6d 61 67 65 2f 61 76 69 66 2c 69 6d 61 67 65 \r\n 01f0 2f 77 65 62 70 2c 69 6d 61 67 65 2f 61 70 6e 67 /webp,image/apng </div>
--	---

- Trường **Authorization** xuất hiện

Authorization: Basic d2lyZXNoYXJrLXN0dWRlbnRzM5ldHdvcms=