



**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
ННК «ІІСА» НТУУ «КПІ ІМ. ІГОРЯ СІКОРСЬКОГО»
КАФЕДРА ММСА**

**Лабораторна робота № 2
З дисципліни: Комп'ютерні мережі**

Протокол HTTP

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Київ 2020

Мета роботи: аналіз деталей роботи протоколу HTTP.

Хід виконання роботи

Перша частина

The screenshot shows the Wireshark interface with a packet capture of an HTTP GET request. The packet list pane at the top shows four packets, with packet 186 selected. The packet details pane shows the structure of the selected packet, including Ethernet II, Internet Protocol Version 4, Transmission Control Protocol, and Hypertext Transfer Protocol. The packet bytes pane shows the raw data of the packet.

No.	Time	Source	Destination	Protocol	Length	Info
186	21.731983	192.168.1.102	128.119.245.12	HTTP	532	GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1
189	21.881208	128.119.245.12	192.168.1.102	HTTP	540	HTTP/1.1 200 OK (text/html)
200	24.216050	192.168.1.102	128.119.245.12	HTTP	464	GET /favicon.ico HTTP/1.1
202	24.390770	128.119.245.12	192.168.1.102	HTTP	538	HTTP/1.1 404 Not Found (text/html)

Frame 186: 532 bytes on wire (4256 bits), 532 bytes captured (4256 bits) on interface \Device\NPF_{8A2CE6CD-F596-41A8-9F9F-6404B65AB4DF}, id 0
Ethernet II, Src: LiteonTe_e9:5f:ac (70:f1:a1:e9:5f:ac), Dst: Tp-LinkT_71:2a:bb (e8:94:f6:71:2a:bb)
Internet Protocol Version 4, Src: 192.168.1.102, Dst: 128.119.245.12
Transmission Control Protocol, Src Port: 51985, Dst Port: 80, Seq: 1, Ack: 1, Len: 478
Hypertext Transfer Protocol
GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\nHost: gaia.cs.umass.edu\r\nConnection: keep-alive\r\nDNT: 1\r\nUpgrade-Insecure-Requests: 1\r\nUser-Agent: Mozilla/5.0 (Windows NT 6.1; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/80.0.3987.122 Safari/537.36\r\nAccept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9\r\n

Request:

No.	Time	Source	Destination	Protocol	Length	Info
186	21.731983	192.168.1.102	128.119.245.12	HTTP	532	GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1

Frame 186: 532 bytes on wire (4256 bits), 532 bytes captured (4256 bits) on interface \Device\NPF_{8A2CE6CD-F596-41A8-9F9F-6404B65AB4DF}, id 0
Ethernet II, Src: LiteonTe_e9:5f:ac (70:f1:a1:e9:5f:ac), Dst: Tp-LinkT_71:2a:bb (e8:94:f6:71:2a:bb)
Internet Protocol Version 4, Src: 192.168.1.102, Dst: 128.119.245.12
Transmission Control Protocol, Src Port: 51985, Dst Port: 80, Seq: 1, Ack: 1, Len: 478
Hypertext Transfer Protocol
GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\nHost: gaia.cs.umass.edu\r\nConnection: keep-alive\r\nDNT: 1\r\nUpgrade-Insecure-Requests: 1\r\nUser-Agent: Mozilla/5.0 (Windows NT 6.1; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/80.0.3987.122 Safari/537.36\r\nAccept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9\r\nAccept-Encoding: gzip, deflate\r\nAccept-Language: en,ru;q=0.9,uk;q=0.8\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: 189]
[Next request in frame: 200]

Response:

```
No.      Time          Source           Destination      Protocol Length Info
189 21.881208    128.119.245.12   192.168.1.102   HTTP      540      HTTP/1.1 200 OK (text/html)
Frame 189: 540 bytes on wire (4320 bits), 540 bytes captured (4320 bits) on interface \Device\NPF_{8A2CE6CD-
F596-41A8-9F9F-6404B65AB4DF}, id 0
Ethernet II, Src: Tp-LinkT_71:2a:bb (e8:94:f6:71:2a:bb), Dst: LiteonTe_e9:5f:ac (70:f1:a1:e9:5f:ac)
Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.1.102
Transmission Control Protocol, Src Port: 80, Dst Port: 51985, Seq: 1, Ack: 479, Len: 486
Hypertext Transfer Protocol
  HTTP/1.1 200 OK\r\n
  Date: Sun, 01 Mar 2020 22:14:59 GMT\r\n
  Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/5.4.16 mod_perl/2.0.11 Perl/v5.16.3\r\n
  Last-Modified: Sun, 01 Mar 2020 06:59:01 GMT\r\n
  ETag: "80-59fc59b090e97"\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
  [HTTP response 1/2]
  [Time since request: 0.149225000 seconds]
  [Request in frame: 186]
  [Next request in frame: 200]
  [Next response in frame: 202]
  [Request URI: http://gaia.cs.umass.edu/favicon.ico]
  File Data: 128 bytes
Line-based text data: text/html (4 lines)
```

Друга частина

2.pcapng

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

http

No.	Time	Source	Destination	Protocol	Length	Info
40	12.184193	192.168.1.102	128.119.245.12	HTTP	643	GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1
45	12.314546	128.119.245.12	192.168.1.102	HTTP	293	HTTP/1.1 304 Not Modified

Frame 40: 643 bytes on wire (5144 bits), 643 bytes captured (5144 bits) on interface \Device\NPF_{8A2CE6CD-F596-41A8-9F9F-6404B65AB4DF}, id 0
Ethernet II, Src: LiteonTe_e9:5f:ac (70:f1:a1:e9:5f:ac), Dst: Tp-LinkT_71:2a:bb (e8:94:f6:71:2a:bb)
Internet Protocol Version 4, Src: 192.168.1.102, Dst: 128.119.245.12
Transmission Control Protocol, Src Port: 52316, Dst Port: 80, Seq: 1, Ack: 1, Len: 589
Hypertext Transfer Protocol

0000 e8 94 f6 71 2a bb 70 f1 a1 e9 5f ac 08 00 45 00 ...q*·p·...·E·
0010 02 75 69 7f 40 00 80 06 57 71 c0 a8 01 66 80 77 ...ui_@·...Wq·...f·w·
0020 f5 0c cc 5c 00 50 32 82 57 59 78 cc 9c 83 50 18 ...\.P2· WYx·...P·
0030 11 1c 7e 3c 00 00 47 45 54 20 2f 77 69 72 65 73 ...<·GE T /wires
0040 68 61 72 6b 2d 6c 61 62 73 2f 48 54 54 50 2d 77 hark-lab s/HTTP-w
0050 69 72 65 73 68 61 72 6b 2d 66 69 6c 65 31 2e 68 ireshark -file1.h
0060 74 6d 6c 20 48 54 54 50 2f 31 2e 31 0d 0a 48 6f tml HTTP /1.1·Ho
0070 73 74 3a 20 67 61 69 61 2e 63 73 2e 75 6d 61 73 st: gaia .cs.umas
0080 73 2e 65 64 75 0d 0a 43 6f 6e 6e 65 63 74 69 6f s.edu·C connectio
0090 6e 3a 20 6b 65 65 70 2d 61 6c 69 76 65 0d 0a 43 n: keep- alive·C
00a0 61 63 68 65 2d 43 6f 6e 74 72 6f 6c 3a 20 6d 61 ache-Con trol: ma
00b0 78 2d 61 67 65 3d 30 0d 0a 44 4e 54 3a 20 31 0d x-age=0·DNT: 1·
00c0 0a 55 70 67 72 61 64 65 2d 49 6e 73 65 63 75 72 ·Upgrade -Insecur

Hypertext Transfer Protocol: Protocol

Packets: 66 · Displayed: 2 (3.0%)

Profile: Default

17:01 24.03.2020

Request:

No.	Time	Source	Destination	Protocol	Length	Info
40	12.184193	192.168.1.102	128.119.245.12	HTTP	643	GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1

Frame 40: 643 bytes on wire (5144 bits), 643 bytes captured (5144 bits) on interface \Device\NPF_{8A2CE6CD-F596-41A8-9F9F-6404B65AB4DF}, id 0
Ethernet II, Src: LiteonTe_e9:5f:ac (70:f1:a1:e9:5f:ac), Dst: Tp-LinkT_71:2a:bb (e8:94:f6:71:2a:bb)
Internet Protocol Version 4, Src: 192.168.1.102, Dst: 128.119.245.12
Transmission Control Protocol, Src Port: 52316, Dst Port: 80, Seq: 1, Ack: 1, Len: 589
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
Cache-Control: max-age=0\r\n
DNT: 1\r\n
Upgrade-Insecure-Requests: 1\r\n
User-Agent: Mozilla/5.0 (Windows NT 6.1; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/80.0.3987.122 Safari/537.36\r\n
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,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: en,ru;q=0.9,uk;q=0.8\r\n
If-None-Match: "80-59fc59b090e97"\r\n
If-Modified-Since: Sun, 01 Mar 2020 06:59:01 GMT\r\n
\r\n
[Full request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file1.html]
[HTTP request 1/1]
[Response in frame: 45]

Response:

No.	Time	Source	Destination	Protocol	Length	Info
45	12.314546	128.119.245.12	192.168.1.102	HTTP	293	HTTP/1.1 304 Not Modified

Frame 45: 293 bytes on wire (2344 bits), 293 bytes captured (2344 bits) on interface \Device\NPF_{8A2CE6CD-F596-41A8-9F9F-6404B65AB4DF}, id 0
Ethernet II, Src: Tp-LinkT_71:2a:bb (e8:94:f6:71:2a:bb), Dst: LiteonTe_e9:5f:ac (70:f1:a1:e9:5f:ac)
Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.1.102
Transmission Control Protocol, Src Port: 80, Dst Port: 52316, Seq: 1, Ack: 590, Len: 239
Hypertext Transfer Protocol
HTTP/1.1 304 Not Modified\r\n
Date: Sun, 01 Mar 2020 22:42:03 GMT\r\n
Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/5.4.16 mod_perl/2.0.11 Perl/v5.16.3\r\n
Connection: Keep-Alive\r\n
Keep-Alive: timeout=5, max=100\r\n
ETag: "80-59fc59b090e97"\r\n
\r\n
[HTTP response 1/1]
[Time since request: 0.130353000 seconds]
[Request in frame: 40]
[Request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file1.html]

Трета частина

3.pcapng

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

http

No.	Time	Source	Destination	Protocol	Length	Info
16	1.749537	192.168.1.102	23.38.51.18	HTTP	523	GET /Images/Assign_AP960108620813.jpg HTTP/1.1
256	2.000716	23.38.51.18	192.168.1.102	HTTP	1397	HTTP/1.1 200 OK (JPEG JFIF image)

Frame 16: 523 bytes on wire (4184 bits), 523 bytes captured (4184 bits) on interface \Device\NPF_{8A2CE6CD-F596-41A8-9F9F-6404B65AB4DF}, id 0

Ethernet II, Src: LiteonTe_e9:5f:ac (70:f1:a1:e9:5f:ac), Dst: Tp-LinkT_71:2a:bb (e8:94:f6:71:2a:bb)

Internet Protocol Version 4, Src: 192.168.1.102, Dst: 23.38.51.18

Transmission Control Protocol, Src Port: 53506, Dst Port: 80, Seq: 1, Ack: 1, Len: 469

Hypertext Transfer Protocol

GET /Images/Assign_AP960108620813.jpg HTTP/1.1\r\n

Host: www.apimages.com\r\n

Connection: keep-alive\r\n

DNT: 1\r\n

Upgrade-Insecure-Requests: 1\r\n

User-Agent: Mozilla/5.0 (Windows NT 6.1; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/80.0.3987.122 Safari/537.36\r\n

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/*;q=0.8,application/signed-exchange;v=h3;q=0.9\r\n

0000 e8 94 f6 71 2a bb 70 f1 a1 e9 5f ac 08 00 45 00 ...q...p...E..

0010 01 fd 67 fb 40 00 80 06 84 b9 c0 a8 01 66 17 26 ...g @...f.&

0020 33 12 d1 02 00 50 52 25 68 f4 bc 38 1e 3d 50 18 3...PR% h...8=P

0030 11 1c d7 45 00 00 47 45 54 20 2f 49 6d 61 67 65 ...E...GE T /Image

0040 73 2f 41 73 73 69 67 6e 5f 41 50 39 36 30 31 30 s/Assign_AP96010

0050 38 36 32 30 38 31 33 2e 6a 70 67 20 48 54 54 50 8620813. jpg HTTP

0060 2f 31 2e 31 0d 0a 48 6f 73 74 3a 20 77 77 77 2e /1.1..Ho st: www.

0070 61 70 69 6d 61 67 65 73 2e 63 6f 6d 0d 0a 43 6f apimages .com..Co

0080 6e 6e 65 63 74 69 6f 6e 3a 20 6b 65 65 70 2d 61 nnection : keep-a

0090 6c 69 76 65 0d 0a 44 4e 54 3a 20 31 0d 0a 55 70 live..DN T: 1..Up

00a0 67 72 61 64 65 2d 49 6e 73 65 63 75 72 65 2d 52 grade-In secure-R

00b0 65 71 75 65 73 74 73 3a 20 31 0d 0a 55 73 65 72 equests: 1..User

00c0 2d 41 67 65 6e 74 3a 20 4d 6f 7a 69 6c 6c 61 2f -Agent: Mozilla/

Hypertext Transfer Protocol: Protocol

Packets: 280 · Displayed: 2 (0.7%)

Profile: Default

17:05 24.03.2020

No. Time Source Destination Protocol Length Info

256 2.000716 23.38.51.18 192.168.1.102 HTTP 1397 HTTP/1.1 200 OK (JPEG JFIF image)

Frame 256: 1397 bytes on wire (11176 bits), 1397 bytes captured (11176 bits) on interface \Device\NPF_{8A2CE6CD-F596-41A8-9F9F-6404B65AB4DF}, id 0

Ethernet II, Src: Tp-LinkT_71:2a:bb (e8:94:f6:71:2a:bb), Dst: LiteonTe_e9:5f:ac (70:f1:a1:e9:5f:ac)

Internet Protocol Version 4, Src: 23.38.51.18, Dst: 192.168.1.102

Transmission Control Protocol, Src Port: 80, Dst Port: 53506, Seq: 216081, Ack: 470, Len: 1343

[149 Reassembled TCP Segments (217423 bytes): #18(1460), #19(1460), #21(1460), #22(1460), #24(1460), #25(1460), #27(1460), #28(1460), #30(1460), #31(1460), #53(1460), #55(1460), #33(1460), #35(1460), #37(1460), #39(1460), #41(1460), #43(1460)]

Hypertext Transfer Protocol

HTTP/1.1 200 OK\r\n

Content-Type: image/jpeg\r\n

Last-Modified: Wed, 20 Nov 2013 20:39:01 GMT\r\n

Accept-Ranges: bytes\r\n

ETag: "c46ac8b30e6ce1:0"\r\n

Server: Microsoft-IIS/7.5\r\n

X-Powered-By: ASP.NET\r\n

Access-Control-Allow-Origin: *\r\n

Content-Length: 217077\r\n

Expires: Sun, 01 Mar 2020 23:45:36 GMT\r\n

Date: Sun, 01 Mar 2020 23:45:36 GMT\r\n

Connection: keep-alive\r\n

\r\n

[HTTP response 1/1]

[Time since request: 0.251179000 seconds]

[Request in frame: 16]

[Request URI: http://www.apimages.com/Images/Assign_AP960108620813.jpg]

File Data: 217077 bytes

Четверта частина

Wireshark capture of a file download. The packet list shows an HTTP GET request for /wireshark-labs/HTTP-wireshark-file4.html. The packet details pane shows the Hypertext Transfer Protocol section.

No.	Time	Source	Destination	Protocol	Length	Info
205	20.139782	192.168.1.102	128.119.245.12	HTTP	532	GET /wireshark-labs/HTTP-wireshark-file4.html HTTP/1.1
228	20.267771	128.119.245.12	192.168.1.102	HTTP	1127	HTTP/1.1 200 OK (text/html)
244	20.330451	192.168.1.102	128.119.245.12	HTTP	464	GET /pearson.png HTTP/1.1
250	20.453832	128.119.245.12	192.168.1.102	HTTP	745	HTTP/1.1 200 OK (PNG)
253	20.455511	192.168.1.102	128.119.245.12	HTTP	478	GET /~kurose/cover_5th_ed.jpg HTTP/1.1
365	20.989288	128.119.245.12	192.168.1.102	HTTP	632	HTTP/1.1 200 OK (JPEG JFIF image)

Frame 205: 532 bytes on wire (4256 bits), 532 bytes captured (4256 bits) on interface \Device\NPF_{8A2CE6CD-F596-41A8-9F9F-6404B65AB4DF}, id 0
Ethernet II, Src: LiteonTe_e9:5f:ac (70:f1:a1:e9:5f:ac), Dst: Tp-LinkT_71:2a:bb (e8:94:f6:71:2a:bb)
Internet Protocol Version 4, Src: 192.168.1.102, Dst: 128.119.245.12
Transmission Control Protocol, Src Port: 53839, Dst Port: 80, Seq: 1, Ack: 1, Len: 478
Hypertext Transfer Protocol

Hex dump and ASCII view of the HTTP request body:

```
0000 e8 94 f6 71 2a bb 70 f1 a1 e9 5f ac 08 00 45 00 ...q* p... ..E-
0010 02 06 78 cb 40 00 80 06 48 94 c0 a8 01 66 80 77 ...x@...H...f.w
0020 f5 0c d2 4f 00 50 11 7e 18 d5 6d a1 a6 57 50 18 ...O.P.w...m..WP
0030 11 1c c3 d3 00 00 47 45 54 20 2f 77 69 72 65 73 .....GE T /wires
0040 68 61 72 6b 2d 6c 61 62 73 2f 48 54 54 50 2d 77 hark-lab s/HTTP-w
0050 69 72 65 73 68 61 72 6b 2d 66 69 6c 65 34 2e 68 ireshark -file4.h
0060 74 6d 6c 20 48 54 54 50 2f 31 2e 31 0d 0a 48 6f tml HTTP /1.1..Ho
0070 73 74 3a 20 67 61 69 61 2e 63 73 2e 75 6d 61 73 st: gaia .cs.umas
0080 73 2e 65 64 75 0d 0a 43 6f 6e 6e 65 63 74 69 6f s.edu..C connectio
0090 6e 3a 20 6b 65 65 70 2d 61 6c 69 76 65 0d 0a 44 n: keep- alive..D
00a0 4e 54 3a 20 31 0d 0a 55 70 67 72 61 64 65 2d 49 NT: 1..U pgrade-I
00b0 6e 73 65 63 75 72 65 2d 52 65 71 75 65 73 74 73 nsecure- Requests
00c0 3a 20 31 0d 0a 55 73 65 72 2d 41 67 65 6e 74 3a : 1..Use r-Agent:
```

Wireshark capture showing a TCP reassembly process. The packet list shows a GET request for /pearson.png. The packet details pane shows the Hypertext Transfer Protocol section.

No.	Time	Source	Destination	Protocol	Length	Info
244	20.330451	192.168.1.102	128.119.245.12	HTTP	464	GET /pearson.png HTTP/1.1
245	20.333653	192.168.1.102	128.119.245.12	TCP	66	53842 → 80 [SYN] Seq=0 Win=8192 Len=0 MSS=1460 WS=4 SACK_PERM=1
246	20.348742	172.217.16.46	192.168.1.102	TCP	54	443 → 53841 [ACK] Seq=824 Ack=2610 Win=67584 Len=0
247	20.450924	128.119.245.12	192.168.1.102	TCP	1514	80 → 53839 [ACK] Seq=1074 Ack=889 Win=31360 Len=1460 [TCP segment of a reassembled PDU]
248	20.451492	128.119.245.12	192.168.1.102	TCP	1514	80 → 53839 [ACK] Seq=2534 Ack=889 Win=31360 Len=1460 [TCP segment of a reassembled PDU]
249	20.451528	192.168.1.102	128.119.245.12	TCP	54	53839 → 80 [ACK] Seq=889 Ack=3994 Win=17520 Len=0
250	20.453832	128.119.245.12	192.168.1.102	HTTP	745	HTTP/1.1 200 OK (PNG)
251	20.453952	128.119.245.12	192.168.1.102	TCP	66	80 → 53842 [SYN, ACK] Seq=0 Ack=1 Win=29200 Len=0 MSS=1460 SACK_PERM=1 WS=128
252	20.454011	192.168.1.102	128.119.245.12	TCP	54	53842 → 80 [ACK] Seq=1 Ack=1 Win=17520 Len=0
253	20.455511	192.168.1.102	128.119.245.12	HTTP	478	GET /~kurose/cover_5th_ed.jpg HTTP/1.1

Frame 250: 745 bytes on wire (5960 bits), 745 bytes captured (5960 bits) on interface \Device\NPF_{8A2CE6CD-F596-41A8-9F9F-6404B65AB4DF}, id 0
Ethernet II, Src: Tp-LinkT_71:2a:bb (e8:94:f6:71:2a:bb), Dst: LiteonTe_e9:5f:ac (70:f1:a1:e9:5f:ac)
Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.1.102
Transmission Control Protocol, Src Port: 80, Dst Port: 53839, Seq: 3994, Ack: 889, Len: 691
[3 Reassembled TCP Segments (3611 bytes): #247(1460), #248(1460), #250(691)]
[Frame: 247, payload: 0-1459 (1460 bytes)]
[Frame: 248, payload: 1460-2919 (1460 bytes)]
[Frame: 250, payload: 2920-3610 (691 bytes)]
[Segment count: 3]
[Reassembled TCP length: 3611]
[Reassembled TCP Data: 485454502f312e3120323030204f4b0d0a4461746553a204d...]
Hypertext Transfer Protocol

Hex dump and ASCII view of the HTTP response body:

```
0000 48 54 54 50 2f 31 2e 31 20 32 30 30 20 4f 4b 0d HTTP/1.1 200 OK
0010 0a 44 61 74 65 3a 20 4d 6f 6e 2c 20 30 32 20 4d ..Date: Mon, 02 M
0020 61 72 20 32 30 32 30 20 30 30 3a 31 35 3a 31 31 ..ar 2020 00:15:11
0030 20 47 4d 54 0d 0a 53 65 72 76 65 72 3a 20 41 70 ..GMT..Se rver: Ap
0040 61 63 68 65 2f 32 2e 34 2e 36 20 28 43 65 6e 74 ..ache/2.4 .6 (Cent
0050 4f 53 29 20 4f 70 65 6e 53 53 4c 2f 31 2e 30 2e ..OS) Open SSL/1.0
0060 32 6b 2d 66 69 70 73 20 50 48 50 2f 35 2e 34 2e ..2K-fips PHP/5.4
0070 31 36 20 6d 6f 64 5f 70 65 72 6c 2f 32 2e 30 2e ..16 mod_p erl/2.0
0080 31 31 20 50 65 72 6c 2f 76 35 2e 31 36 2e 33 0d ..11 Perl/ v5.16.3
0090 0a 4c 61 73 74 2d 4d 6f 64 69 66 69 65 64 3a 20 ..Last-Mod ified:
00a0 53 61 74 2c 20 30 36 20 41 75 67 20 32 30 31 36 ..Sat, 06 Aug 2016
```

Відповіді на контрольні запитання:

1. І браузер, і сервер використовують версію протоколу HTML 1.1.
2. Мови: en, ru, uk.
3. IP адреса мого комп'ютера: 192.168.1.102; сервера: 128.119.245.12.
4. 200 OK.
5. Sun, 01 Mar 2020 06:59:01 GMT.
6. 128 bytes.
7. Ні.
8. Ні.
9. Так.
10. Так.
11. 304 Not modified, ні, не повернув.
12. Одне.
13. 149.
14. 200 OK.
15. Ні.
16. Три. Усі 128.119.245.12.
17. Послідовно, бо GET запит відправлявся лише після отримання відповіді на попередній.

Висновок

В ході виконання даної лабораторної роботи, були набуті навички використання програми Wireshark для захоплення та аналізу пакетів. Було розглянуто інформацію, що містить в собі протокол HTTP.