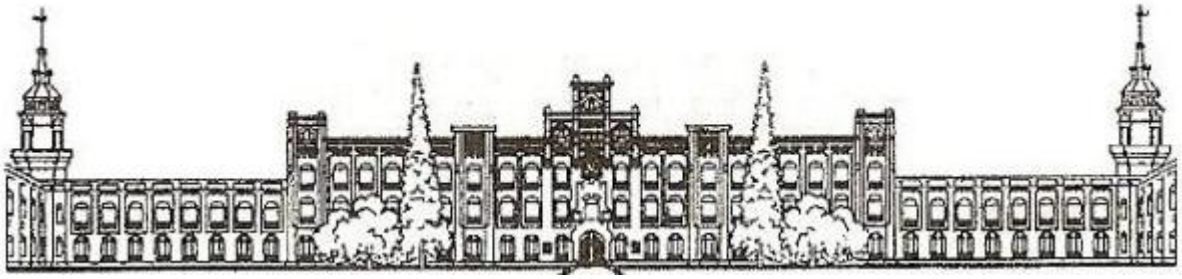

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ

ННК «ІПСА» НТУУ «КПІ ІМ. ІГОРЯ СІКОРСЬКОГО»

КАФЕДРА ММСА

Лабораторна робота № 2

З дисципліни: Комп'ютерні мережі

Протоколи HTTP

Виконав:

Студент III курсу

Групи КА-72

Братцев Антін

Перевірив: Кухарєв С. О.

Київ 2020

Мета роботи: аналіз деталей роботи протоколу HTTP.

Питання 1-7

No. Time Source Destination Protocol Length Info
43 0.297857 192.168.1.2 128.119.245.12 HTTP 536 GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1

Frame 43: 536 bytes on wire (4288 bits), 536 bytes captured (4288 bits) on interface \Device\NPF_{04A418C6-E72D-4DC5-8B1A-21EC1CC49F79}, id 0
Ethernet II, Src: Chongqin_d9:c0:f7 (ac:d5:64:d9:c0:f7), Dst: ASUSTekC_dc:ce:a0 (e0:cb:4e:dc:ce:a0)
Internet Protocol Version 4, Src: 192.168.1.2, Dst: 128.119.245.12
Transmission Control Protocol, Src Port: 50712, Dst Port: 80, Seq: 1, Ack: 1, Len: 482
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
Upgrade-Insecure-Requests: 1\r\n
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/83.0.4103.61 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-US,en;q=0.9,ru;q=0.8,uk;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: 46]

No. Time Source Destination Protocol Length Info
46 0.422489 128.119.245.12 192.168.1.2 HTTP 540 HTTP/1.1 200 OK (text/html)

Frame 46: 540 bytes on wire (4320 bits), 540 bytes captured (4320 bits) on interface \Device\NPF_{04A418C6-E72D-4DC5-8B1A-21EC1CC49F79}, id 0
Ethernet II, Src: ASUSTekC_dc:ce:a0 (e0:cb:4e:dc:ce:a0), Dst: Chongqin_d9:c0:f7 (ac:d5:64:d9:c0:f7)
Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.1.2
Transmission Control Protocol, Src Port: 80, Dst Port: 50712, Seq: 1, Ack: 483, Len: 486
Hypertext Transfer Protocol
HTTP/1.1 200 OK\r\n
Date: Mon, 25 May 2020 15:06:28 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: Mon, 25 May 2020 05:59:03 GMT\r\n
ETag: "80-5a672ad16b2e4"\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: 0.124632000 seconds]
[Request in frame: 43]
[Next response in frame: 48]
[Request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file1.html]
File Data: 128 bytes
Line-based text data: text/html (4 lines)

Питання 8-11

No. Time Source Destination Protocol Length Info
11 2.254737 192.168.1.2 128.119.245.12 HTTP 647 GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1

Frame 11: 647 bytes on wire (5176 bits), 647 bytes captured (5176 bits) on interface \Device\NPF_{04A418C6-E72D-4DC5-8B1A-21EC1CC49F79}, id 0
Ethernet II, Src: Chongqin_d9:c0:f7 (ac:d5:64:d9:c0:f7), Dst: ASUSTekC_dc:ce:a0 (e0:cb:4e:dc:ce:a0)
Internet Protocol Version 4, Src: 192.168.1.2, Dst: 128.119.245.12
Transmission Control Protocol, Src Port: 50728, Dst Port: 80, Seq: 1, Ack: 1, Len: 593
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
Upgrade-Insecure-Requests: 1\r\n
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/83.0.4103.61 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-US,en;q=0.9,ru;q=0.8,uk;q=0.7\r\n
If-None-Match: "80-5a672ad16b2e4"\r\n
If-Modified-Since: Mon, 25 May 2020 05:59:03 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: 13]

No. Time Source Destination Protocol Length Info
13 2.384072 128.119.245.12 192.168.1.2 HTTP 293 HTTP/1.1 304 Not Modified

Frame 13: 293 bytes on wire (2344 bits), 293 bytes captured (2344 bits) on interface \Device\NPF_{04A418C6-E72D-4DC5-8B1A-21EC1CC49F79}, id 0
Ethernet II, Src: ASUSTekC_dc:ce:a0 (e0:cb:4e:dc:ce:a0), Dst: Chongqin_d9:c0:f7 (ac:d5:64:d9:c0:f7)
Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.1.2
Transmission Control Protocol, Src Port: 80, Dst Port: 50728, Seq: 1, Ack: 594, Len: 239
Hypertext Transfer Protocol
HTTP/1.1 304 Not Modified\r\n
Date: Mon, 25 May 2020 15:08:45 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: "80-5a672ad16b2e4"\r\n
\r\n
[HTTP response 1/1]
[Time since request: 0.129335000 seconds]
[Request in frame: 11]
[Request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file1.html]

Питання 12-15

No. Time Source Destination Protocol Length Info
26 5.254984 192.168.1.2 66.6.101.171 HTTP 741 GET /dyn/str_strip/000000000/00000000/0000000/000000/70000/3000 HTTP/1.1

Frame 26: 741 bytes on wire (5928 bits), 741 bytes captured (5928 bits) on interface \Device\NPF_{04A418C6-E72D-4DC5-8B1A-21EC1CC49F79}, id 0
Ethernet II, Src: Chongqin_d9:c0:f7 (ac:d5:64:d9:c0:f7), Dst: ASUSTekC_dc:ce:a0 (e0:cb:4e:dc:ce:a0)
Internet Protocol Version 4, Src: 192.168.1.2, Dst: 66.6.101.171
Transmission Control Protocol, Src Port: 50730, Dst Port: 80, Seq: 1, Ack: 1, Len: 687
Source Port: 50730
Destination Port: 80
[Stream index: 4]
[TCP Segment Len: 687]
Sequence number: 1 (relative sequence number)
Sequence number (raw): 2943949040
[Next sequence number: 688 (relative sequence number)]
Acknowledgment number: 1 (relative ack number)
Acknowledgment number (raw): 371410628
0101 .... = Header Length: 20 bytes (5)
Flags: 0x018 (PSH, ACK)
Window size value: 64240
[Calculated window size: 64240]
[Window size scaling factor: -2 (no window scaling used)]
Checksum: 0xa811 [correct]
[Checksum Status: Good]
[Calculated Checksum: 0xa811]
Urgent pointer: 0
[SEQ/ACK analysis]
[Timestamps]
TCP payload (687 bytes)
Hypertext Transfer Protocol
GET /dyn/str_strip/000000000/00000000/0000000/000000/70000/3000 HTTP/1.1\r\n
[Expert Info (Chat/Sequence): GET /dyn/str_strip/000000000/00000000/0000000/000000/70000/3000 HTTP/1.1\r\n]
Request Method: GET
Request URI: /dyn/str_strip/000000000/00000000/0000000/000000/70000/3000
Request Version: HTTP/1.1
Host: www.dilbert.com\r\n
Connection: keep-alive\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/83.0.4103.61 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-US,en;q=0.9,ru;q=0.8,uk;q=0.7\r\n
Cookie: _ga=GA1.2.79042334.1590416464; _gid=GA1.2.300860887.1590416464; _ym_uid=1590416465996644688; _ym_d=1590416465; __qca=P0-1962387123-1590416465065; _ym_isad=1; _ym_visorc_52686112=b\r\n
\r\n
[Full request URI: http://www.dilbert.com/dyn/str_strip/000000000/00000000/0000000/000000/70000/3000]

[HTTP request 1/1]
[Response in frame: 28]

No. Time Source Destination Protocol Length Info
28 5.403629 66.6.101.171 192.168.1.2 HTTP 241 HTTP/1.1 301 Moved Permanently

Frame 28: 241 bytes on wire (1928 bits), 241 bytes captured (1928 bits) on interface \Device\NPF_{04A418C6-E72D-4DC5-8B1A-21EC1CC49F79}, id 0
Ethernet II, Src: ASUSTekC_dc:ce:a0 (e0:cb:4e:dc:ce:a0), Dst: Chongqin_d9:c0:f7 (ac:d5:64:d9:c0:f7)
Internet Protocol Version 4, Src: 66.6.101.171, Dst: 192.168.1.2
Transmission Control Protocol, Src Port: 80, Dst Port: 50730, Seq: 1, Ack: 688, Len: 187
Source Port: 80
Destination Port: 50730
[Stream index: 4]
[TCP Segment Len: 187]
Sequence number: 1 (relative sequence number)
Sequence number (raw): 371410628
[Next sequence number: 188 (relative sequence number)]
Acknowledgment number: 688 (relative ack number)
Acknowledgment number (raw): 2943949727
0101 .... = Header Length: 20 bytes (5)
Flags: 0x018 (PSH, ACK)
Window size value: 30228
[Calculated window size: 30228]
[Window size scaling factor: -2 (no window scaling used)]
Checksum: 0xab44 [correct]
[Checksum Status: Good]
[Calculated Checksum: 0xab44]
Urgent pointer: 0
[SEQ/ACK analysis]
[Timestamps]
TCP payload (187 bytes)
Hypertext Transfer Protocol
HTTP/1.1 301 Moved Permanently\r\n
[Expert Info (Chat/Sequence): HTTP/1.1 301 Moved Permanently\r\n]
Response Version: HTTP/1.1
Status Code: 301
[Status Code Description: Moved Permanently]
Response Phrase: Moved Permanently
Content-Type: text/html\r\n
Content-length: 0\r\n
Connection: Close\r\n
Location: https://dilbert.com/dyn/str_strip/000000000/00000000/0000000/000000/70000/3000\r\n
\r\n
[HTTP response 1/1]
[Time since request: 0.148645000 seconds]
[Request in frame: 26]
[Request URI: http://www.dilbert.com/dyn/str_strip/000000000/00000000/0000000/000000/70000/3000]

Питання 12-15

No. Time Source Destination Protocol Length Info
41 1.493367 192.168.1.2 128.119.245.12 HTTP 536 GET /wireshark-labs/HTTP-wireshark-file4.html HTTP/1.1

Frame 41: 536 bytes on wire (4288 bits), 536 bytes captured (4288 bits) on interface \Device\NPF_{04A418C6-E72D-4DC5-8B1A-21EC1CC49F79}, id 0

Ethernet II, Src: Chongqin_d9:c0:f7 (ac:d5:64:d9:c0:f7), Dst: ASUSTekC_dc:ce:a0 (e0:cb:4e:dc:ce:a0)

Internet Protocol Version 4, Src: 192.168.1.2, Dst: 128.119.245.12

Transmission Control Protocol, Src Port: 50754, Dst Port: 80, Seq: 1, Ack: 1, Len: 482

Source Port: 50754

Destination Port: 80

[Stream index: 4]

[TCP Segment Len: 482]

Sequence number: 1 (relative sequence number)

Sequence number (raw): 2700640932

[Next sequence number: 483 (relative sequence number)]

Acknowledgment number: 1 (relative ack number)

Acknowledgment number (raw): 1221850190

0101 .... = Header Length: 20 bytes (5)

Flags: 0x018 (PSH, ACK)
Window size value: 256
[Calculated window size: 65536]
[Window size scaling factor: 256]
Checksum: 0x4aa5 [correct]
[Checksum Status: Good]
[Calculated Checksum: 0x4aa5]
Urgent pointer: 0
[SEQ/ACK analysis]
[Timestamps]
TCP payload (482 bytes)
Hypertext Transfer Protocol
GET /wireshark-labs/HTTP-wireshark-file4.html HTTP/1.1\r\n
[Expert Info (Chat/Sequence): GET /wireshark-labs/HTTP-wireshark-file4.html HTTP/1.1\r\n]
Request Method: GET
Request URI: /wireshark-labs/HTTP-wireshark-file4.html
Request Version: HTTP/1.1
Host: gaia.cs.umass.edu\r\n
Connection: keep-alive\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/83.0.4103.61 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-US,en;q=0.9,ru;q=0.8,uk;q=0.7\r\n
\r\n
[Full request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file4.html]
[HTTP request 1/2]
[Response in frame: 43]
[Next request in frame: 44]

No.	Time	Source	Destination	Protocol	Length	Info
43	1.625504	128.119.245.12	192.168.1.2	HTTP	1127	HTTP/1.1 200 OK (text/html)

Frame 43: 1127 bytes on wire (9016 bits), 1127 bytes captured (9016 bits) on interface \Device\NPF_{04A418C6-E72D-4DC5-8B1A-21EC1CC49F79}, id 0
Ethernet II, Src: ASUSTekC_dc:ce:a0 (e0:cb:4e:dc:ce:a0), Dst: Chongqin_d9:c0:f7 (ac:d5:64:d9:c0:f7)
Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.1.2
Transmission Control Protocol, Src Port: 80, Dst Port: 50754, Seq: 1, Ack: 483, Len: 1073
Source Port: 80
Destination Port: 50754
[Stream index: 4]
[TCP Segment Len: 1073]
Sequence number: 1 (relative sequence number)
Sequence number (raw): 1221850190
[Next sequence number: 1074 (relative sequence number)]
Acknowledgment number: 483 (relative ack number)
Acknowledgment number (raw): 2700641414
0101 .... = Header Length: 20 bytes (5)
Flags: 0x018 (PSH, ACK)
Window size value: 237
[Calculated window size: 30336]

[Window size scaling factor: 128]
Checksum: 0x3272 [correct]
[Checksum Status: Good]
[Calculated Checksum: 0x3272]
Urgent pointer: 0
[SEQ/ACK analysis]
[Timestamps]
TCP payload (1073 bytes)
Hypertext Transfer Protocol
HTTP/1.1 200 OK\r\n
[Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]
Response Version: HTTP/1.1
Status Code: 200
[Status Code Description: OK]
Response Phrase: OK
Date: Mon, 25 May 2020 15:10:38 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: Mon, 25 May 2020 05:59:03 GMT\r\n
ETag: "2ca-5a672ad155b21"\r\n
Accept-Ranges: bytes\r\n
Content-Length: 714\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: 0.132137000 seconds]
[Request in frame: 41]
[Next request in frame: 44]
[Next response in frame: 51]
[Request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file4.html]
File Data: 714 bytes
Line-based text data: text/html (17 lines)

No. Time Source Destination Protocol Length Info
44 1.660020 192.168.1.2 128.119.245.12 HTTP 468 GET /pearson.png HTTP/1.1

Frame 44: 468 bytes on wire (3744 bits), 468 bytes captured (3744 bits) on interface \Device\NPF_{04A418C6-E72D-4DC5-8B1A-21EC1CC49F79}, id 0
Ethernet II, Src: Chongqin_d9:c0:f7 (ac:d5:64:d9:c0:f7), Dst: ASUSTekC_dc:ce:a0 (e0:cb:4e:dc:ce:a0)
Internet Protocol Version 4, Src: 192.168.1.2, Dst: 128.119.245.12
Transmission Control Protocol, Src Port: 50754, Dst Port: 80, Seq: 483, Ack: 1074, Len: 414
Source Port: 50754
Destination Port: 80
[Stream index: 4]
[TCP Segment Len: 414]
Sequence number: 483 (relative sequence number)
Sequence number (raw): 2700641414
[Next sequence number: 897 (relative sequence number)]
Acknowledgment number: 1074 (relative ack number)
Acknowledgment number (raw): 1221851263
0101 .... = Header Length: 20 bytes (5)
Flags: 0x018 (PSH, ACK)

Window size value: 252
[Calculated window size: 64512]
[Window size scaling factor: 256]
Checksum: 0xfd92 [correct]
[Checksum Status: Good]
[Calculated Checksum: 0xfd92]
Urgent pointer: 0
[SEQ/ACK analysis]
[Timestamps]
TCP payload (414 bytes)
Hypertext Transfer Protocol
GET /pearson.png HTTP/1.1\r\n
[Expert Info (Chat/Sequence): GET /pearson.png HTTP/1.1\r\n]
Request Method: GET
Request URI: /pearson.png
Request Version: HTTP/1.1
Host: gaia.cs.umass.edu\r\n
Connection: keep-alive\r\n
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/83.0.4103.61 Safari/537.36\r\n
Accept: image/webp,image/apng,image/*,*/*;q=0.8\r\n
Referer: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file4.html\r\n
Accept-Encoding: gzip, deflate\r\n
Accept-Language: en-US,en;q=0.9,ru;q=0.8,uk;q=0.7\r\n
\r\n
[Full request URI: http://gaia.cs.umass.edu/pearson.png]
[HTTP request 2/2]
[Prev request in frame: 41]
[Response in frame: 51]

No.	Time	Source	Destination	Protocol	Length	Info
49	1.800808	192.168.1.2	128.119.245.12	HTTP	482	GET /~kurose/cover_5th_ed.jpg HTTP/1.1

Frame 49: 482 bytes on wire (3856 bits), 482 bytes captured (3856 bits) on interface \Device\NPF_{04A418C6-E72D-4DC5-8B1A-21EC1CC49F79}, id 0
Ethernet II, Src: Chongqin_d9:c0:f7 (ac:d5:64:d9:c0:f7), Dst: ASUSTekC_dc:ce:a0 (e0:cb:4e:dc:ce:a0)
Internet Protocol Version 4, Src: 192.168.1.2, Dst: 128.119.245.12
Transmission Control Protocol, Src Port: 50755, Dst Port: 80, Seq: 1, Ack: 1, Len: 428
Source Port: 50755
Destination Port: 80
[Stream index: 5]
[TCP Segment Len: 428]
Sequence number: 1 (relative sequence number)
Sequence number (raw): 1612356411
[Next sequence number: 429 (relative sequence number)]
Acknowledgment number: 1 (relative ack number)
Acknowledgment number (raw): 2488669196
0101 .... = Header Length: 20 bytes (5)
Flags: 0x018 (PSH, ACK)
Window size value: 256
[Calculated window size: 65536]
[Window size scaling factor: 256]
Checksum: 0xa23b [correct]

[Checksum Status: Good]
[Calculated Checksum: 0xa23b]
Urgent pointer: 0
[SEQ/ACK analysis]
[Timestamps]
TCP payload (428 bytes)
Hypertext Transfer Protocol
GET /~kurose/cover_5th_ed.jpg HTTP/1.1\r\n
[Expert Info (Chat/Sequence): GET /~kurose/cover_5th_ed.jpg HTTP/1.1\r\n]
Request Method: GET
Request URI: /~kurose/cover_5th_ed.jpg
Request Version: HTTP/1.1
Host: manic.cs.umass.edu\r\n
Connection: keep-alive\r\n
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/83.0.4103.61 Safari/537.36\r\n
Accept: image/webp,image/apng,image/*,*/*;q=0.8\r\n
Referer: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file4.html\r\n
Accept-Encoding: gzip, deflate\r\n
Accept-Language: en-US,en;q=0.9,ru;q=0.8,uk;q=0.7\r\n
\r\n
[Full request URI: http://manic.cs.umass.edu/~kurose/cover_5th_ed.jpg]
[HTTP request 1/1]
[Response in frame: 157]

No.	Time	Source	Destination	Protocol	Length	Info
51	1.800852	128.119.245.12	192.168.1.2	HTTP	745	HTTP/1.1 200 OK (PNG)

Frame 51: 745 bytes on wire (5960 bits), 745 bytes captured (5960 bits) on interface \Device\NPF_{04A418C6-E72D-4DC5-8B1A-21EC1CC49F79}, id 0
Ethernet II, Src: ASUSTekC_dc:ce:a0 (e0:cb:4e:dc:ce:a0), Dst: Chongqin_d9:c0:f7 (ac:d5:64:d9:c0:f7)
Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.1.2
Transmission Control Protocol, Src Port: 80, Dst Port: 50754, Seq: 3994, Ack: 897, Len: 691
Source Port: 80
Destination Port: 50754
[Stream index: 4]
[TCP Segment Len: 691]
Sequence number: 3994 (relative sequence number)
Sequence number (raw): 1221854183
[Next sequence number: 4685 (relative sequence number)]
Acknowledgment number: 897 (relative ack number)
Acknowledgment number (raw): 2700641828
0101 .... = Header Length: 20 bytes (5)
Flags: 0x018 (PSH, ACK)
Window size value: 245
[Calculated window size: 31360]
[Window size scaling factor: 128]
Checksum: 0x2628 [correct]
[Checksum Status: Good]
[Calculated Checksum: 0x2628]
Urgent pointer: 0
[SEQ/ACK analysis]
[Timestamps]

TCP payload (691 bytes)
TCP segment data (691 bytes)
[3 Reassembled TCP Segments (3611 bytes): #48(1460), #50(1460), #51(691)]
Hypertext Transfer Protocol
HTTP/1.1 200 OK\r\n
[Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]
Response Version: HTTP/1.1
Status Code: 200
[Status Code Description: OK]
Response Phrase: OK
Date: Mon, 25 May 2020 15:10:38 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: Sat, 06 Aug 2016 10:08:14 GMT\r\n
ETag: "cc3-539645c7f1ee7"\r\n
Accept-Ranges: bytes\r\n
Content-Length: 3267\r\n
Keep-Alive: timeout=5, max=99\r\n
Connection: Keep-Alive\r\n
Content-Type: image/png\r\n
\r\n
[HTTP response 2/2]
[Time since request: 0.140832000 seconds]
[Prev request in frame: 41]
[Prev response in frame: 43]
[Request in frame: 44]
[Request URI: http://gaia.cs.umass.edu/pearson.png]
File Data: 3267 bytes
Portable Network Graphics

No. Time Source Destination Protocol Length Info
157 2.373455 128.119.245.12 192.168.1.2 HTTP 632 HTTP/1.1 200 OK (JPEG JFIF image)

Frame 157: 632 bytes on wire (5056 bits), 632 bytes captured (5056 bits) on interface \Device\NPF_{04A418C6-E72D-4DC5-8B1A-21EC1CC49F79}, id 0
Ethernet II, Src: ASUSTekC_dc:ce:a0 (e0:cb:4e:dc:ce:a0), Dst: Chongqin_d9:c0:f7 (ac:d5:64:d9:c0:f7)
Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.1.2
Transmission Control Protocol, Src Port: 80, Dst Port: 50755, Seq: 100741, Ack: 429, Len: 578
Source Port: 80
Destination Port: 50755
[Stream index: 5]
[TCP Segment Len: 578]
Sequence number: 100741 (relative sequence number)
Sequence number (raw): 2488769936
[Next sequence number: 101319 (relative sequence number)]
Acknowledgment number: 429 (relative ack number)
Acknowledgment number (raw): 1612356839
0101 .... = Header Length: 20 bytes (5)
Flags: 0x018 (PSH, ACK)
Window size value: 237
[Calculated window size: 30336]
[Window size scaling factor: 128]
Checksum: 0xc629 [correct]
[Checksum Status: Good]

[Calculated Checksum: 0xc629]
Urgent pointer: 0
[SEQ/ACK analysis]
[Timestamps]
TCP payload (578 bytes)
TCP segment data (578 bytes)
[70 Reassembled TCP Segments (101318 bytes): #54(1460), #55(1460), #57(1460), #58(1460), #60(1460), #61(1460), #63(1460), #64(1460), #65(1460), #67(1460), #69(1460), #70(1460), #72(1460), #73(1460), #75(1460), #76(1460), #78(1460), #79(1460]
Hypertext Transfer Protocol
HTTP/1.1 200 OK\r\n
[Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]
Response Version: HTTP/1.1
Status Code: 200
[Status Code Description: OK]
Response Phrase: OK
Date: Mon, 25 May 2020 15:10:38 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: Tue, 15 Sep 2009 18:23:27 GMT\r\n
ETag: "18a68-473a1e0e6e5c0"\r\n
Accept-Ranges: bytes\r\n
Content-Length: 100968\r\n
Keep-Alive: timeout=5, max=100\r\n
Connection: Keep-Alive\r\n
Content-Type: image/jpeg\r\n
\r\n
[HTTP response 1/1]
[Time since request: 0.572647000 seconds]
[Request in frame: 49]
[Request URI: http://manic.cs.umass.edu/~kurose/cover_5th_ed.jpg]
File Data: 100968 bytes
JPEG File Interchange Format

Контрольні питання

1. Яку версію протоколу HTTP використовує ваш браузер (1.0 чи 1.1)? Яку версію протоколу використовує сервер?

Браузер та сервер використовують протоколи 1.1

2. Які мови (якщо вказано) браузер може прийняти від сервера?

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

3. Які IP-адреси вашого комп’ютера та цільового веб-сервера?

Мій комп’ютер: 192.168.1.2

Сервер: 128.119.245.12

4. Який статусний код сервер повернув у відповіді вашому браузеру?

200 OK

5. Коли на сервері в останній раз був модифікований файл, який запитується браузером?

: Mon, 25 May 2020 05:59:03 GMT

6. Скільки байт контенту повертається сервером?

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7. Переглядаючи нерозібраний байтовий потік пакету, чи бачите ви деякі заголовки в потоці, які не відображаються у вікні деталей пакету? Якщо так, назвіть один з них.

Всі відображаються.

8. Перевірте вміст першого запиту HTTP GET від вашого браузера до сервера. Чи є в ньому заголовок IF-MODIFIED-SINCE?

Такого заголовку немає.

9. Перевірте вміст першої відповіді сервера. Чи повернув сервер вміст файлу безпосередньо у відповіді?

```
<html>\n
Congratulations.  You've downloaded the file \n
http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file1.html!\n
</html>\n
```

10. Перевірте вміст другого запиту HTTP GET. Чи є в ньому заголовок IF-MODIFIEDSINCE? Якщо так, яке значення йому відповідає?

If-Modified-Since: Mon, 25 May 2020 05:59:03 GMT\r\n

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11. Який код та опис статусу другої відповіді сервера? Чи повернув сервер вміст файлу безпосередньо у відповіді?

304 Not Modified

12. Скільки повідомлень HTTP GET було відправлено вашим браузером?

1 повідомлення

13. Скільки пакетів TCP було необхідно для доставки одної відповіді HTTP-сервера?

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14. Який код та опис статусу був у відповіді сервера?

HTTP/1.1 301 Moved Permanently\r\n

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15. Чи зустрічаються у даних пакетів-продовжень протоколу TCP стрічки з кодом та описом статусу відповіді, або ж якісь заголовки протоколу HTTP?

Не зустрічаються

16. Скільки запитів HTTP GET було відправлено вашим браузером? Якими були цільові IP-адреси запитів?

3 запити.

Цільовий адрес: 128.119.245.12.

17. Чи можете ви встановити, чи були ресурси отримані паралельно чи послідовно? Яким чином?

Вони були отримані послідовно, це ми можемо дослідити подивившися на час коли вони були отримані.

Висновок

В ході виконання даної лабораторної роботи, були покращено навички використання програми Wireshark для захоплення пакетів. Було

проаналізовано протоколи HTTP та було проведено аналіз деталей роботи даних протоколів.