Міністерство освіти і науки України

Національний технічний університет України

“Київський політехнічний інститут імені Ігоря Сікорського”

Кафедра математичних методів системного аналізу

ЗВІТ

про виконання лабораторних робіт

з дисципліни “Комп’ютерні мережі”

Лабораторна робота №2 Протокол HTTP

Виконав: студент групи ІС-зп91

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Прийняв: Кухарєв С.О.

Київ 2020

**Лабораторна робота № 2. Протокол HTTP**

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**Контрольні запитання:**

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| **Запитання 1-7** |
| **No. Time Source Destination Protocol Length Info**  **50 4.483746 192.168.1.108 128.119.245.12 HTTP 471 GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1**  Frame 50: 471 bytes on wire (3768 bits), 471 bytes captured (3768 bits) on interface \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}, id 0  Ethernet II, Src: IntelCor\_4f:90:fc (60:57:18:4f:90:fc), Dst: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  Internet Protocol Version 4, Src: 192.168.1.108, Dst: 128.119.245.12  Transmission Control Protocol, Src Port: 1440, Dst Port: 80, Seq: 1, Ack: 1, Len: 417  Hypertext Transfer Protocol  GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n  [Expert Info (Chat/Sequence): GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n]  [GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n]  [Severity level: Chat]  [Group: Sequence]  Request Method: GET  Request URI: /wireshark-labs/HTTP-wireshark-file1.html  Request Version: HTTP/1.1  Accept: text/html,application/xhtml+xml,application/xml;q=0.9,\*/\*;q=0.8\r\n  Accept-Language: ru-RU\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/70.0.3538.102 Safari/537.36 Edge/18.18362\r\n  Accept-Encoding: gzip, deflate\r\n  Host: gaia.cs.umass.edu\r\n  DNT: 1\r\n  Connection: Keep-Alive\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: 64]  **No. Time Source Destination Protocol Length Info**  **64 4.621219 128.119.245.12 192.168.1.108 HTTP 540 HTTP/1.1 200 OK (text/html)**  Frame 64: 540 bytes on wire (4320 bits), 540 bytes captured (4320 bits) on interface \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}, id 0  Ethernet II, Src: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30), Dst: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.1.108  Transmission Control Protocol, Src Port: 80, Dst Port: 1440, Seq: 1, Ack: 418, Len: 486  Hypertext Transfer Protocol  HTTP/1.1 200 OK\r\n  [Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]  [HTTP/1.1 200 OK\r\n]  [Severity level: Chat]  [Group: Sequence]  Response Version: HTTP/1.1  Status Code: 200  [Status Code Description: OK]  Response Phrase: OK  Date: Tue, 28 Apr 2020 06:55:07 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, 28 Apr 2020 05:59:03 GMT\r\n  ETag: "80-5a4538757d2f2"\r\n  Accept-Ranges: bytes\r\n  Content-Length: 128\r\n  [Content length: 128]  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 1/1]  [Time since request: 0.137473000 seconds]  [Request in frame: 50]  [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)  <html>\n  Congratulations. You've downloaded the file \n  http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file1.html!\n  </html>\n |

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

GET /wireshark-labs/HTTP-wireshark-file1.html **HTTP/1.1**\r\n

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

Accept-Language: **ru-RU**\r\n

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

IP-адреси вашого комп’ютера: Source 192.168.1.108

IP-адреси цільового веб-сервера: Destination 128.119.245.12

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

HTTP/1.1 200 OK\r\n

**Status Code: 200**

[Status Code Description: OK]

Response Phrase: OK

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

Last-Modified: **Tue, 28 Apr 2020 05:59:03** GMT\r\n

**6. Скільки байт контенту повертається сервером?**

**Content-Length: 128**

**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.**

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| 000 60 38 e0 c9 a4 30 60 57 18 4f 90 fc 08 00 45 00 `8...0`W.O....E.  0010 01 c9 ca d3 40 00 80 06 f6 c2 c0 a8 01 6c 80 77 ....@........l.w  0020 f5 0c 05 a0 00 50 58 87 c7 3e 8a 32 1e f1 50 18 .....PX..>.2..P.  0030 04 00 0e 3c 00 00 47 45 54 20 2f 77 69 72 65 73 ...<..GET /wires  0040 68 61 72 6b 2d 6c 61 62 73 2f 48 54 54 50 2d 77 hark-labs/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 41 63 tml HTTP/1.1..Ac  0070 63 65 70 74 3a 20 74 65 78 74 2f 68 74 6d 6c 2c cept: text/html,  0080 61 70 70 6c 69 63 61 74 69 6f 6e 2f 78 68 74 6d application/xhtm  0090 6c 2b 78 6d 6c 2c 61 70 70 6c 69 63 61 74 69 6f l+xml,applicatio  00a0 6e 2f 78 6d 6c 3b 71 3d 30 2e 39 2c 2a 2f 2a 3b n/xml;q=0.9,\*/\*;  00b0 71 3d 30 2e 38 0d 0a 41 63 63 65 70 74 2d 4c 61 q=0.8..Accept-La  00c0 6e 67 75 61 67 65 3a 20 72 75 2d 52 55 0d 0a 55 nguage: ru-RU..U  00d0 70 67 72 61 64 65 2d 49 6e 73 65 63 75 72 65 2d pgrade-Insecure-  00e0 52 65 71 75 65 73 74 73 3a 20 31 0d 0a 55 73 65 Requests: 1..Use  00f0 72 2d 41 67 65 6e 74 3a 20 4d 6f 7a 69 6c 6c 61 r-Agent: Mozilla  0100 2f 35 2e 30 20 28 57 69 6e 64 6f 77 73 20 4e 54 /5.0 (Windows NT  0110 20 31 30 2e 30 3b 20 57 69 6e 36 34 3b 20 78 36 10.0; Win64; x6  0120 34 29 20 41 70 70 6c 65 57 65 62 4b 69 74 2f 35 4) AppleWebKit/5  0130 33 37 2e 33 36 20 28 4b 48 54 4d 4c 2c 20 6c 69 37.36 (KHTML, li  0140 6b 65 20 47 65 63 6b 6f 29 20 43 68 72 6f 6d 65 ke Gecko) Chrome  0150 2f 37 30 2e 30 2e 33 35 33 38 2e 31 30 32 20 53 /70.0.3538.102 S  0160 61 66 61 72 69 2f 35 33 37 2e 33 36 20 45 64 67 afari/537.36 Edg  0170 65 2f 31 38 2e 31 38 33 36 32 0d 0a 41 63 63 65 e/18.18362..Acce  0180 70 74 2d 45 6e 63 6f 64 69 6e 67 3a 20 67 7a 69 pt-Encoding: gzi  0190 70 2c 20 64 65 66 6c 61 74 65 0d 0a 48 6f 73 74 p, deflate..Host  01a0 3a 20 67 61 69 61 2e 63 73 2e 75 6d 61 73 73 2e : gaia.cs.umass.  01b0 65 64 75 0d 0a 44 4e 54 3a 20 31 0d 0a 43 6f 6e edu..DNT: 1..Con  01c0 6e 65 63 74 69 6f 6e 3a 20 4b 65 65 70 2d 41 6c nection: Keep-Al  01d0 69 76 65 0d 0a 0d 0a ive.... |
| 0000 60 57 18 4f 90 fc 60 38 e0 c9 a4 30 08 00 45 00 `W.O..`8...0..E.  0010 02 0e 65 6b 40 00 31 06 aa e6 80 77 f5 0c c0 a8 ..ek@.1....w....  0020 01 6c 00 50 05 a0 8a 32 1e f1 58 87 c8 df 50 18 .l.P...2..X...P.  0030 00 ed d9 5d 00 00 48 54 54 50 2f 31 2e 31 20 32 ...]..HTTP/1.1 2  0040 30 30 20 4f 4b 0d 0a 44 61 74 65 3a 20 54 75 65 00 OK..Date: Tue  0050 2c 20 32 38 20 41 70 72 20 32 30 32 30 20 30 36 , 28 Apr 2020 06  0060 3a 35 35 3a 30 37 20 47 4d 54 0d 0a 53 65 72 76 :55:07 GMT..Serv  0070 65 72 3a 20 41 70 61 63 68 65 2f 32 2e 34 2e 36 er: Apache/2.4.6  0080 20 28 43 65 6e 74 4f 53 29 20 4f 70 65 6e 53 53 (CentOS) OpenSS  0090 4c 2f 31 2e 30 2e 32 6b 2d 66 69 70 73 20 50 48 L/1.0.2k-fips PH  00a0 50 2f 35 2e 34 2e 31 36 20 6d 6f 64 5f 70 65 72 P/5.4.16 mod\_per  00b0 6c 2f 32 2e 30 2e 31 31 20 50 65 72 6c 2f 76 35 l/2.0.11 Perl/v5  00c0 2e 31 36 2e 33 0d 0a 4c 61 73 74 2d 4d 6f 64 69 .16.3..Last-Modi  00d0 66 69 65 64 3a 20 54 75 65 2c 20 32 38 20 41 70 fied: Tue, 28 Ap  00e0 72 20 32 30 32 30 20 30 35 3a 35 39 3a 30 33 20 r 2020 05:59:03  00f0 47 4d 54 0d 0a 45 54 61 67 3a 20 22 38 30 2d 35 GMT..ETag: "80-5  0100 61 34 35 33 38 37 35 37 64 32 66 32 22 0d 0a 41 a4538757d2f2"..A  0110 63 63 65 70 74 2d 52 61 6e 67 65 73 3a 20 62 79 ccept-Ranges: by  0120 74 65 73 0d 0a 43 6f 6e 74 65 6e 74 2d 4c 65 6e tes..Content-Len  0130 67 74 68 3a 20 31 32 38 0d 0a 4b 65 65 70 2d 41 gth: 128..Keep-A  0140 6c 69 76 65 3a 20 74 69 6d 65 6f 75 74 3d 35 2c live: timeout=5,  0150 20 6d 61 78 3d 31 30 30 0d 0a 43 6f 6e 6e 65 63 max=100..Connec  0160 74 69 6f 6e 3a 20 4b 65 65 70 2d 41 6c 69 76 65 tion: Keep-Alive  0170 0d 0a 43 6f 6e 74 65 6e 74 2d 54 79 70 65 3a 20 ..Content-Type:  0180 74 65 78 74 2f 68 74 6d 6c 3b 20 63 68 61 72 73 text/html; chars  0190 65 74 3d 55 54 46 2d 38 0d 0a 0d 0a 3c 68 74 6d et=UTF-8....<htm  01a0 6c 3e 0a 43 6f 6e 67 72 61 74 75 6c 61 74 69 6f l>.Congratulatio  01b0 6e 73 2e 20 20 59 6f 75 27 76 65 20 64 6f 77 6e ns. You've down  01c0 6c 6f 61 64 65 64 20 74 68 65 20 66 69 6c 65 20 loaded the file  01d0 0a 68 74 74 70 3a 2f 2f 67 61 69 61 2e 63 73 2e .http://gaia.cs.  01e0 75 6d 61 73 73 2e 65 64 75 2f 77 69 72 65 73 68 umass.edu/wiresh  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!.</html>. |

В цілому всі заголовки відображаються, крім найперших байт:

1. 8...0`W.O....E. ....@........l.w.....PX..>.2..P. ...<..
2. `W.O..`8...0..E. ..ek@.1....w.... l.P...2..X...P. ...]..

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| **8-11** |
| **No. Time Source Destination Protocol Length Info**  **85 3.465146 192.168.1.108 128.119.245.12 HTTP 540 GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1**  Frame 85: 540 bytes on wire (4320 bits), 540 bytes captured (4320 bits) on interface \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}, id 0  Ethernet II, Src: IntelCor\_4f:90:fc (60:57:18:4f:90:fc), Dst: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  Internet Protocol Version 4, Src: 192.168.1.108, Dst: 128.119.245.12  Transmission Control Protocol, Src Port: 6043, Dst Port: 80, Seq: 1, Ack: 1, Len: 486  Hypertext Transfer Protocol  GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n  [Expert Info (Chat/Sequence): GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n]  [GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n]  [Severity level: Chat]  [Group: Sequence]  Request Method: GET  Request URI: /wireshark-labs/HTTP-wireshark-file1.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/81.0.4044.122 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: ru-RU,ru;q=0.9,en-US;q=0.8,en;q=0.7\r\n  \r\n  [Full request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file1.html]  [HTTP request 1/2]  [Response in frame: 136]  [Next request in frame: 443]  **No. Time Source Destination Protocol Length Info**  **136 3.601854 128.119.245.12 192.168.1.108 HTTP 540 HTTP/1.1 200 OK (text/html)**  Frame 136: 540 bytes on wire (4320 bits), 540 bytes captured (4320 bits) on interface \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}, id 0  Ethernet II, Src: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30), Dst: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.1.108  Transmission Control Protocol, Src Port: 80, Dst Port: 6043, Seq: 1, Ack: 487, Len: 486  Hypertext Transfer Protocol  HTTP/1.1 200 OK\r\n  [Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]  [HTTP/1.1 200 OK\r\n]  [Severity level: Chat]  [Group: Sequence]  Response Version: HTTP/1.1  Status Code: 200  [Status Code Description: OK]  Response Phrase: OK  Date: Tue, 28 Apr 2020 08:33:26 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, 28 Apr 2020 05:59:03 GMT\r\n  ETag: "80-5a4538757d2f2"\r\n  Accept-Ranges: bytes\r\n  Content-Length: 128\r\n  [Content length: 128]  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: 0.136708000 seconds]  [Request in frame: 85]  [Next request in frame: 443]  [Next response in frame: 446]  [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)**  **<html>\n**  **Congratulations. You've downloaded the file \n**  **http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file1.html!\n**  **</html>\n**  **No. Time Source Destination Protocol Length Info**  **443 3.707035 192.168.1.108 128.119.245.12 HTTP 472 GET /favicon.ico HTTP/1.1**  Frame 443: 472 bytes on wire (3776 bits), 472 bytes captured (3776 bits) on interface \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}, id 0  Ethernet II, Src: IntelCor\_4f:90:fc (60:57:18:4f:90:fc), Dst: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  Internet Protocol Version 4, Src: 192.168.1.108, Dst: 128.119.245.12  Transmission Control Protocol, Src Port: 6043, Dst Port: 80, Seq: 487, Ack: 487, Len: 418  Hypertext Transfer Protocol  GET /favicon.ico HTTP/1.1\r\n  [Expert Info (Chat/Sequence): GET /favicon.ico HTTP/1.1\r\n]  [GET /favicon.ico HTTP/1.1\r\n]  [Severity level: Chat]  [Group: Sequence]  Request Method: GET  Request URI: /favicon.ico  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/81.0.4044.122 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-file1.html\r\n  Accept-Encoding: gzip, deflate\r\n  Accept-Language: ru-RU,ru;q=0.9,en-US;q=0.8,en;q=0.7\r\n  \r\n  [Full request URI: http://gaia.cs.umass.edu/favicon.ico]  [HTTP request 2/2]  [Prev request in frame: 85]  [Response in frame: 446]  **No. Time Source Destination Protocol Length Info**  **446 3.828670 128.119.245.12 192.168.1.108 HTTP 538 HTTP/1.1 404 Not Found (text/html)**  Frame 446: 538 bytes on wire (4304 bits), 538 bytes captured (4304 bits) on interface \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}, id 0  Ethernet II, Src: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30), Dst: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.1.108  Transmission Control Protocol, Src Port: 80, Dst Port: 6043, Seq: 487, Ack: 905, Len: 484  Hypertext Transfer Protocol  HTTP/1.1 404 Not Found\r\n  [Expert Info (Chat/Sequence): HTTP/1.1 404 Not Found\r\n]  [HTTP/1.1 404 Not Found\r\n]  [Severity level: Chat]  [Group: Sequence]  Response Version: HTTP/1.1  Status Code: 404  [Status Code Description: Not Found]  Response Phrase: Not Found  Date: Tue, 28 Apr 2020 08:33:26 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  Content-Length: 209\r\n  [Content length: 209]  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  [HTTP response 2/2]  [Time since request: 0.121635000 seconds]  [Prev request in frame: 85]  [Prev response in frame: 136]  [Request in frame: 443]  [Request URI: http://gaia.cs.umass.edu/favicon.ico]  File Data: 209 bytes  Line-based text data: text/html (7 lines)  <!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML 2.0//EN">\n  <html><head>\n  <title>404 Not Found</title>\n  </head><body>\n  <h1>Not Found</h1>\n  <p>The requested URL /favicon.ico was not found on this server.</p>\n  </body></html>\n  **No. Time Source Destination Protocol Length Info**  **468 10.814863 192.168.1.108 128.119.245.12 HTTP 651 GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1**  Frame 468: 651 bytes on wire (5208 bits), 651 bytes captured (5208 bits) on interface \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}, id 0  Ethernet II, Src: IntelCor\_4f:90:fc (60:57:18:4f:90:fc), Dst: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  Internet Protocol Version 4, Src: 192.168.1.108, Dst: 128.119.245.12  Transmission Control Protocol, Src Port: 6047, Dst Port: 80, Seq: 1, Ack: 1, Len: 597  Hypertext Transfer Protocol  GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n  [Expert Info (Chat/Sequence): GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n]  [GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n]  [Severity level: Chat]  [Group: Sequence]  Request Method: GET  Request URI: /wireshark-labs/HTTP-wireshark-file1.html  Request Version: HTTP/1.1  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/81.0.4044.122 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: ru-RU,ru;q=0.9,en-US;q=0.8,en;q=0.7\r\n  If-None-Match: "80-5a4538757d2f2"\r\n  **If-Modified-Since: Tue, 28 Apr 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: 470]  **No. Time Source Destination Protocol Length Info**  **470 10.945739 128.119.245.12 192.168.1.108 HTTP 293 HTTP/1.1 304 Not Modified**  Frame 470: 293 bytes on wire (2344 bits), 293 bytes captured (2344 bits) on interface \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}, id 0  Ethernet II, Src: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30), Dst: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.1.108  Transmission Control Protocol, Src Port: 80, Dst Port: 6047, Seq: 1, Ack: 598, Len: 239  Hypertext Transfer Protocol  **HTTP/1.1 304 Not Modified\r\n**  [Expert Info (Chat/Sequence): HTTP/1.1 304 Not Modified\r\n]  [HTTP/1.1 304 Not Modified\r\n]  [Severity level: Chat]  [Group: Sequence]  Response Version: HTTP/1.1  **Status Code: 304**  [Status Code Description: Not Modified]  Response Phrase: Not Modified  Date: Tue, 28 Apr 2020 08:33:33 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: "80-5a4538757d2f2"\r\n  \r\n  [HTTP response 1/1]  [Time since request: 0.130876000 seconds]  [Request in frame: 468]  [Request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file1.html] |

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

Відсутній

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

Повернув:

Line-based text data: text/html (4 lines)

<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-MODIFIED-SINCE? Якщо так, яке значення йому відповідає?**

If-Modified-Since: Tue, 28 Apr 2020 05:59:03 GMT\r\n

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

HTTP/1.1 304 Not Modified\r\n

Status Code: 304

Не повернув.

**Запитання 12-15**

**(Роздруківки пакетів нижче)**

<http://icons.iconarchive.com/icons/paomedia/small-n-flat/1024/gift-icon.png>

**12. Скільки повідомлень HTTP GET було відправлено вашим браузером?**

Одне.

GET /icons/paomedia/small-n-flat/1024/gift-icon.png HTTP/1.1\r\n

(рис. 2.1)

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

16 Пакетів (рис. 2.2)

[16 Reassembled TCP Segments (23021 bytes): #61(1460), #62(1460), #63(1460), #64(1460), #65(1460), #66(1460), #67(1460), #68(1460), #70(1460), #71(1460), #72(1460), #73(1460), #74(1460), #75(1460), #76(1460), #80(1121)]

[Frame: 61, payload: 0-1459 (1460 bytes)]

[Frame: 62, payload: 1460-2919 (1460 bytes)]

[Frame: 63, payload: 2920-4379 (1460 bytes)]

[Frame: 64, payload: 4380-5839 (1460 bytes)]

[Frame: 65, payload: 5840-7299 (1460 bytes)]

[Frame: 66, payload: 7300-8759 (1460 bytes)]

[Frame: 67, payload: 8760-10219 (1460 bytes)]

[Frame: 68, payload: 10220-11679 (1460 bytes)]

[Frame: 70, payload: 11680-13139 (1460 bytes)]

[Frame: 71, payload: 13140-14599 (1460 bytes)]

[Frame: 72, payload: 14600-16059 (1460 bytes)]

[Frame: 73, payload: 16060-17519 (1460 bytes)]

[Frame: 74, payload: 17520-18979 (1460 bytes)]

[Frame: 75, payload: 18980-20439 (1460 bytes)]

[Frame: 76, payload: 20440-21899 (1460 bytes)]

[Frame: 80, payload: 21900-23020 (1121 bytes)]

[Segment count: 16]

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

*HTTP/1.1 200 OK\r\n*

*Status Code: 200*

Content-Type: image/png\r\n

Content-Length: 22410\r\n

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

Відсутні. Лише в першому пакеті. Пакеті №61. (рис. 2.3)

|  |
| --- |
| C:\Разное\My\КПИ\Семестр 2\16.04.2020\206 Комп'ютерні мережі-20200416T175924Z-001\206 Комп_ютерні мережі\ВЫПОЛНЕНИЕ\Л2\2 Выделено.png |
| Рис. 2.1. Запит GЕT на отримання зображення |
| C:\Разное\My\КПИ\Семестр 2\16.04.2020\206 Комп'ютерні мережі-20200416T175924Z-001\206 Комп_ютерні мережі\ВЫПОЛНЕНИЕ\Л2\3 Выделено.png | |
| Рис. 2.2. Відповідь сервера “200 OK” про передачу всього пакету | |

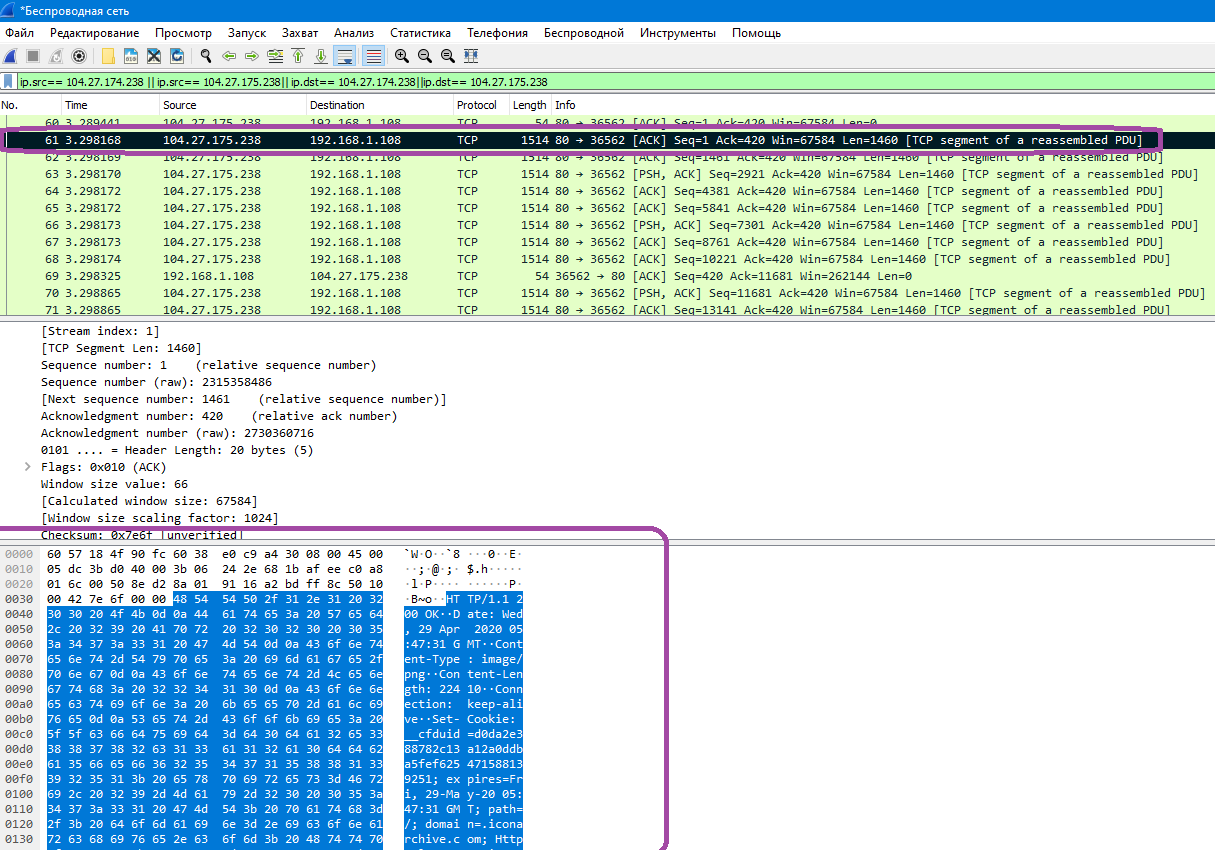


Рис. 2.3. Заголовки HTTP лише в першому пакеті (№61)

|  |
| --- |
| **Запитання 12-15** |
| **No. Time Source Destination Protocol Length Info**  **59 3.268314 192.168.1.108 104.27.175.238 HTTP 473 GET /icons/paomedia/small-n-flat/1024/gift-icon.png HTTP/1.1**  Frame 59: 473 bytes on wire (3784 bits), 473 bytes captured (3784 bits) on interface \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}, id 0  Interface id: 0 (\Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2})  Interface name: \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}  Interface description: Беспроводная сеть  Encapsulation type: Ethernet (1)  Arrival Time: Apr 29, 2020 08:47:32.519372000 Финляндия (лето)  [Time shift for this packet: 0.000000000 seconds]  Epoch Time: 1588139252.519372000 seconds  [Time delta from previous captured frame: 0.000895000 seconds]  [Time delta from previous displayed frame: 0.000895000 seconds]  [Time since reference or first frame: 3.268314000 seconds]  Frame Number: 59  Frame Length: 473 bytes (3784 bits)  Capture Length: 473 bytes (3784 bits)  [Frame is marked: True]  [Frame is ignored: False]  [Protocols in frame: eth:ethertype:ip:tcp:http]  [Coloring Rule Name: HTTP]  [Coloring Rule String: http || tcp.port == 80 || http2]  Ethernet II, Src: IntelCor\_4f:90:fc (60:57:18:4f:90:fc), Dst: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  Destination: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  Address: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  .... ..0. .... .... .... .... = LG bit: Globally unique address (factory default)  .... ...0 .... .... .... .... = IG bit: Individual address (unicast)  Source: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  Address: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  .... ..0. .... .... .... .... = LG bit: Globally unique address (factory default)  .... ...0 .... .... .... .... = IG bit: Individual address (unicast)  Type: IPv4 (0x0800)  Internet Protocol Version 4, Src: 192.168.1.108, Dst: 104.27.175.238  0100 .... = Version: 4  .... 0101 = Header Length: 20 bytes (5)  Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)  0000 00.. = Differentiated Services Codepoint: Default (0)  .... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)  Total Length: 459  Identification: 0x6174 (24948)  Flags: 0x4000, Don't fragment  0... .... .... .... = Reserved bit: Not set  .1.. .... .... .... = Don't fragment: Set  ..0. .... .... .... = More fragments: Not set  Fragment offset: 0  Time to live: 128  Protocol: TCP (6)  Header checksum: 0xbd9a [validation disabled]  [Header checksum status: Unverified]  Source: 192.168.1.108  Destination: 104.27.175.238  Transmission Control Protocol, Src Port: 36562, Dst Port: 80, Seq: 1, Ack: 1, Len: 419  Source Port: 36562  Destination Port: 80  [Stream index: 1]  [TCP Segment Len: 419]  Sequence number: 1 (relative sequence number)  Sequence number (raw): 2730360297  [Next sequence number: 420 (relative sequence number)]  Acknowledgment number: 1 (relative ack number)  Acknowledgment number (raw): 2315358486  0101 .... = Header Length: 20 bytes (5)  Flags: 0x018 (PSH, ACK)  000. .... .... = Reserved: Not set  ...0 .... .... = Nonce: Not set  .... 0... .... = Congestion Window Reduced (CWR): Not set  .... .0.. .... = ECN-Echo: Not set  .... ..0. .... = Urgent: Not set  .... ...1 .... = Acknowledgment: Set  .... .... 1... = Push: Set  .... .... .0.. = Reset: Not set  .... .... ..0. = Syn: Not set  .... .... ...0 = Fin: Not set  [TCP Flags: ·······AP···]  Window size value: 1024  [Calculated window size: 262144]  [Window size scaling factor: 256]  Checksum: 0xa723 [unverified]  [Checksum Status: Unverified]  Urgent pointer: 0  [SEQ/ACK analysis]  [iRTT: 0.020081000 seconds]  [Bytes in flight: 419]  [Bytes sent since last PSH flag: 419]  [Timestamps]  [Time since first frame in this TCP stream: 0.021052000 seconds]  [Time since previous frame in this TCP stream: 0.000971000 seconds]  TCP payload (419 bytes)  **Hypertext Transfer Protocol**  **GET /icons/paomedia/small-n-flat/1024/gift-icon.png HTTP/1.1\r\n**  [Expert Info (Chat/Sequence): GET /icons/paomedia/small-n-flat/1024/gift-icon.png HTTP/1.1\r\n]  [GET /icons/paomedia/small-n-flat/1024/gift-icon.png HTTP/1.1\r\n]  [Severity level: Chat]  [Group: Sequence]  **Request Method: GET**  **Request URI: /icons/paomedia/small-n-flat/1024/gift-icon.png**  Request Version: HTTP/1.1  Accept: text/html,application/xhtml+xml,application/xml;q=0.9,\*/\*;q=0.8\r\n  Accept-Language: ru-RU\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/70.0.3538.102 Safari/537.36 Edge/18.18362\r\n  Accept-Encoding: gzip, deflate\r\n  Host: icons.iconarchive.com\r\n  Connection: Keep-Alive\r\n  \r\n  [Full request URI: http://icons.iconarchive.com/icons/paomedia/small-n-flat/1024/gift-icon.png]  [HTTP request 1/1]  [Response in frame: 80]  **No. Time Source Destination Protocol Length Info**  **80 3.301784 104.27.175.238 192.168.1.108 HTTP 1175 HTTP/1.1 200 OK (PNG)**  Frame 80: 1175 bytes on wire (9400 bits), 1175 bytes captured (9400 bits) on interface \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}, id 0  Interface id: 0 (\Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2})  Interface name: \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}  Interface description: Беспроводная сеть  Encapsulation type: Ethernet (1)  Arrival Time: Apr 29, 2020 08:47:32.552842000 Финляндия (лето)  [Time shift for this packet: 0.000000000 seconds]  Epoch Time: 1588139252.552842000 seconds  [Time delta from previous captured frame: 0.001620000 seconds]  [Time delta from previous displayed frame: 0.002779000 seconds]  [Time since reference or first frame: 3.301784000 seconds]  Frame Number: 80  Frame Length: 1175 bytes (9400 bits)  Capture Length: 1175 bytes (9400 bits)  [Frame is marked: True]  [Frame is ignored: False]  [Protocols in frame: eth:ethertype:ip:tcp:http:png]  [Coloring Rule Name: HTTP]  [Coloring Rule String: http || tcp.port == 80 || http2]  Ethernet II, Src: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30), Dst: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  Destination: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  Address: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  .... ..0. .... .... .... .... = LG bit: Globally unique address (factory default)  .... ...0 .... .... .... .... = IG bit: Individual address (unicast)  Source: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  Address: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  .... ..0. .... .... .... .... = LG bit: Globally unique address (factory default)  .... ...0 .... .... .... .... = IG bit: Individual address (unicast)  Type: IPv4 (0x0800)  Internet Protocol Version 4, Src: 104.27.175.238, Dst: 192.168.1.108  0100 .... = Version: 4  .... 0101 = Header Length: 20 bytes (5)  Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)  0000 00.. = Differentiated Services Codepoint: Default (0)  .... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)  Total Length: 1161  Identification: 0x3bdf (15327)  Flags: 0x4000, Don't fragment  0... .... .... .... = Reserved bit: Not set  .1.. .... .... .... = Don't fragment: Set  ..0. .... .... .... = More fragments: Not set  Fragment offset: 0  Time to live: 59  Protocol: TCP (6)  Header checksum: 0x2572 [validation disabled]  [Header checksum status: Unverified]  Source: 104.27.175.238  Destination: 192.168.1.108  Transmission Control Protocol, Src Port: 80, Dst Port: 36562, Seq: 21901, Ack: 420, Len: 1121  Source Port: 80  Destination Port: 36562  [Stream index: 1]  [TCP Segment Len: 1121]  Sequence number: 21901 (relative sequence number)  Sequence number (raw): 2315380386  [Next sequence number: 23022 (relative sequence number)]  Acknowledgment number: 420 (relative ack number)  Acknowledgment number (raw): 2730360716  0101 .... = Header Length: 20 bytes (5)  Flags: 0x018 (PSH, ACK)  000. .... .... = Reserved: Not set  ...0 .... .... = Nonce: Not set  .... 0... .... = Congestion Window Reduced (CWR): Not set  .... .0.. .... = ECN-Echo: Not set  .... ..0. .... = Urgent: Not set  .... ...1 .... = Acknowledgment: Set  .... .... 1... = Push: Set  .... .... .0.. = Reset: Not set  .... .... ..0. = Syn: Not set  .... .... ...0 = Fin: Not set  [TCP Flags: ·······AP···]  Window size value: 66  [Calculated window size: 67584]  [Window size scaling factor: 1024]  Checksum: 0x0018 [unverified]  [Checksum Status: Unverified]  Urgent pointer: 0  [SEQ/ACK analysis]  [iRTT: 0.020081000 seconds]  [Bytes in flight: 1121]  [Bytes sent since last PSH flag: 1121]  [Timestamps]  [Time since first frame in this TCP stream: 0.054522000 seconds]  [Time since previous frame in this TCP stream: 0.002779000 seconds]  TCP payload (1121 bytes)  TCP segment data (1121 bytes)  **[16 Reassembled TCP Segments (23021 bytes): #61(1460), #62(1460), #63(1460), #64(1460), #65(1460), #66(1460), #67(1460), #68(1460), #70(1460), #71(1460), #72(1460), #73(1460), #74(1460), #75(1460), #76(1460), #80(1121)]**  **[Frame: 61, payload: 0-1459 (1460 bytes)]**  **[Frame: 62, payload: 1460-2919 (1460 bytes)]**  **[Frame: 63, payload: 2920-4379 (1460 bytes)]**  **[Frame: 64, payload: 4380-5839 (1460 bytes)]**  **[Frame: 65, payload: 5840-7299 (1460 bytes)]**  **[Frame: 66, payload: 7300-8759 (1460 bytes)]**  **[Frame: 67, payload: 8760-10219 (1460 bytes)]**  **[Frame: 68, payload: 10220-11679 (1460 bytes)]**  **[Frame: 70, payload: 11680-13139 (1460 bytes)]**  **[Frame: 71, payload: 13140-14599 (1460 bytes)]**  **[Frame: 72, payload: 14600-16059 (1460 bytes)]**  **[Frame: 73, payload: 16060-17519 (1460 bytes)]**  **[Frame: 74, payload: 17520-18979 (1460 bytes)]**  **[Frame: 75, payload: 18980-20439 (1460 bytes)]**  **[Frame: 76, payload: 20440-21899 (1460 bytes)]**  **[Frame: 80, payload: 21900-23020 (1121 bytes)]**  **[Segment count: 16]**  **[Reassembled TCP length: 23021]**  **[Reassembled TCP Data: 485454502f312e3120323030204f4b0d0a446174653a2057…]**  Hypertext Transfer Protocol  **HTTP/1.1 200 OK\r\n**  **[Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]**  **[HTTP/1.1 200 OK\r\n]**  **[Severity level: Chat]**  **[Group: Sequence]**  **Response Version: HTTP/1.1**  **Status Code: 200**  **[Status Code Description: OK]**  **Response Phrase: OK**  Date: Wed, 29 Apr 2020 05:47:31 GMT\r\n  **Content-Type: image/png\r\n**  **Content-Length: 22410\r\n**  **[Content length: 22410]**  Connection: keep-alive\r\n  Set-Cookie: \_\_cfduid=d0da2e388782c13a12a0ddba5fef625471588139251; expires=Fri, 29-May-20 05:47:31 GMT; path=/; domain=.iconarchive.com; HttpOnly; SameSite=Lax\r\n  Cache-Control: public, max-age=172800\r\n  Expires: Thu, 30 Apr 2020 10:51:16 GMT\r\n  ETag: "1556850846"\r\n  Last-Modified: Wed, 14 Dec 2016 23:19:21 GMT\r\n  CF-Cache-Status: HIT\r\n  Age: 68175\r\n  Accept-Ranges: bytes\r\n  Vary: Accept-Encoding\r\n  Server: cloudflare\r\n  CF-RAY: 58b6ba908b8d696d-DME\r\n  cf-request-id: 026612ee530000696dc78a2200000001\r\n  \r\n  [HTTP response 1/1]  [Time since request: 0.033470000 seconds]  [Request in frame: 59]  [Request URI: http://icons.iconarchive.com/icons/paomedia/small-n-flat/1024/gift-icon.png]  *File Data: 22410 bytes*  *Portable Network Graphics*  *PNG Signature: 89504e470d0a1a0a*  *Image Header (IHDR)*  *Len: 13*  *Chunk: IHDR*  *..0. .... .... .... .... .... .... .... = Ancillary: This is a CRITICAL chunk*  *.... .... ..0. .... .... .... .... .... = Private: This is a PUBLIC chunk*  *.... .... .... .... .... .... ..0. .... = Safe To Copy: This chunk is NOT safe to copy*  *Width: 1024*  *Height: 1024*  *Bit Depth: 8*  *Colour Type: Truecolour with alpha (6)*  *Compression Method: Deflate (0)*  *Filter Method: Adaptive (0)*  *Interlace Method: No interlace (0)*  *CRC: 0x7f1d2b83*  *Significant bits (sBIT)*  *Len: 4*  *Chunk: sBIT*  *..1. .... .... .... .... .... .... .... = Ancillary: This is an ANCILLARY chunk*  *.... .... ..0. .... .... .... .... .... = Private: This is a PUBLIC chunk*  *.... .... .... .... .... .... ..0. .... = Safe To Copy: This chunk is NOT safe to copy*  *Data*  *CRC: 0x7c086488*  *Physical pixel dimensions (pHYs)*  *Len: 9*  *Chunk: pHYs*  *..1. .... .... .... .... .... .... .... = Ancillary: This is an ANCILLARY chunk*  *.... .... ..0. .... .... .... .... .... = Private: This is a PUBLIC chunk*  *.... .... .... .... .... .... ..1. .... = Safe To Copy: This chunk is SAFE TO COPY*  *Horizontal pixels per unit: 151181*  *Vertical pixels per unit: 151181*  *Unit: Unit is METRE (1)*  *CRC: 0x407a96bc*  *Textual data (tEXt)*  *Len: 25*  *Chunk: tEXt*  *..1. .... .... .... .... .... .... .... = Ancillary: This is an ANCILLARY chunk*  *.... .... ..0. .... .... .... .... .... = Private: This is a PUBLIC chunk*  *.... .... .... .... .... .... ..1. .... = Safe To Copy: This chunk is SAFE TO COPY*  *Keyword: Software*  *String: www.inkscape.org*  *CRC: 0x9bee3c1a*  *Image data chunk (IDAT)*  *Len: 8192*  *Chunk: IDAT*  *..0. .... .... .... .... .... .... .... = Ancillary: This is a CRITICAL chunk*  *.... .... ..0. .... .... .... .... .... = Private: This is a PUBLIC chunk*  *.... .... .... .... .... .... ..0. .... = Safe To Copy: This chunk is NOT safe to copy*  *Data*  *CRC: 0xf6e1ff17*  *Image data chunk (IDAT)*  *Len: 8192*  *Chunk: IDAT*  *..0. .... .... .... .... .... .... .... = Ancillary: This is a CRITICAL chunk*  *.... .... ..0. .... .... .... .... .... = Private: This is a PUBLIC chunk*  *.... .... .... .... .... .... ..0. .... = Safe To Copy: This chunk is NOT safe to copy*  *Data*  *CRC: 0xde59ca68*  *Image data chunk (IDAT)*  *Len: 5871*  *Chunk: IDAT*  *..0. .... .... .... .... .... .... .... = Ancillary: This is a CRITICAL chunk*  *.... .... ..0. .... .... .... .... .... = Private: This is a PUBLIC chunk*  *.... .... .... .... .... .... ..0. .... = Safe To Copy: This chunk is NOT safe to copy*  *Data*  *CRC: 0x67728645*  *Image Trailer (IEND)*  *Len: 0*  *Chunk: IEND*  *..0. .... .... .... .... .... .... .... = Ancillary: This is a CRITICAL chunk*  *.... .... ..0. .... .... .... .... .... = Private: This is a PUBLIC chunk*  *.... .... .... .... .... .... ..0. .... = Safe To Copy: This chunk is NOT safe to copy*  *CRC: 0xae426082* |

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

Три (рис. 2.4.).  **GET /wireshark-labs/HTTP-wireshark-file4.html HTTP/1.1\r\n**

**GET /~kurose/cover\_5th\_ed.jpg HTTP/1.1\r\n GET /pearson.png HTTP/1.1\r\n**

|  |
| --- |
| C:\Разное\My\КПИ\Семестр 2\16.04.2020\206 Комп'ютерні мережі-20200416T175924Z-001\206 Комп_ютерні мережі\ВЫПОЛНЕНИЕ\Л2\5 выделение.png |

Рис. 2.4. Три Запити GET

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

Послідовно (рис 2.5.). В даному випадку спочатку був отриман ресурс pearson.png (Фрейм 74,75, 76)

[3 Reassembled TCP Segments (3611 bytes): #74(1460), #75(1460), #76(691)]

[Frame: 74, payload: 0-1459 (1460 bytes)]

[Frame: 75, payload: 1460-2919 (1460 bytes)]

[Frame: 76, payload: 2920-3610 (691 bytes)]

[Segment count: 3]

[Reassembled TCP length: 3611]

А потім одразу з 77-го відбувалося отримання /~kurose/cover\_5th\_ed.jpg

[70 Reassembled TCP Segments (101318 bytes): #77(1460), #78(1460), #79(1460), #80(1460), #81(1460), #82(1460), #85(1460), #86(1460), #87(1460), #88(1460), #90(1460), #91(1460), #92(1460), #93(1460), #94(1460), #95(1460), #97(1460), #98(1460]

|  |
| --- |
| C:\Разное\My\КПИ\Семестр 2\16.04.2020\206 Комп'ютерні мережі-20200416T175924Z-001\206 Комп_ютерні мережі\ВЫПОЛНЕНИЕ\Л2\6.png |

Рис. 2.5 Послідовність отримання ресурсів

|  |
| --- |
| **16-17** |
| **No. Time Source Destination Protocol Length Info**  **36 0.917821 192.168.1.108 128.119.245.12 HTTP 453 GET /wireshark-labs/HTTP-wireshark-file4.html HTTP/1.1**  Frame 36: 453 bytes on wire (3624 bits), 453 bytes captured (3624 bits) on interface \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}, id 0  Interface id: 0 (\Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2})  Interface name: \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}  Interface description: Беспроводная сеть  Encapsulation type: Ethernet (1)  Arrival Time: Apr 29, 2020 10:52:21.575121000 Финляндия (лето)  [Time shift for this packet: 0.000000000 seconds]  Epoch Time: 1588146741.575121000 seconds  [Time delta from previous captured frame: 0.001586000 seconds]  [Time delta from previous displayed frame: 0.000000000 seconds]  [Time since reference or first frame: 0.917821000 seconds]  Frame Number: 36  Frame Length: 453 bytes (3624 bits)  Capture Length: 453 bytes (3624 bits)  [Frame is marked: True]  [Frame is ignored: False]  [Protocols in frame: eth:ethertype:ip:tcp:http]  [Coloring Rule Name: HTTP]  [Coloring Rule String: http || tcp.port == 80 || http2]  Ethernet II, Src: IntelCor\_4f:90:fc (60:57:18:4f:90:fc), Dst: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  Destination: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  Address: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  .... ..0. .... .... .... .... = LG bit: Globally unique address (factory default)  .... ...0 .... .... .... .... = IG bit: Individual address (unicast)  Source: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  Address: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  .... ..0. .... .... .... .... = LG bit: Globally unique address (factory default)  .... ...0 .... .... .... .... = IG bit: Individual address (unicast)  Type: IPv4 (0x0800)  Internet Protocol Version 4, Src: 192.168.1.108, Dst: 128.119.245.12  0100 .... = Version: 4  .... 0101 = Header Length: 20 bytes (5)  Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)  0000 00.. = Differentiated Services Codepoint: Default (0)  .... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)  Total Length: 439  Identification: 0x0ce1 (3297)  Flags: 0x4000, Don't fragment  0... .... .... .... = Reserved bit: Not set  .1.. .... .... .... = Don't fragment: Set  ..0. .... .... .... = More fragments: Not set  Fragment offset: 0  Time to live: 128  Protocol: TCP (6)  Header checksum: 0xb4c7 [validation disabled]  [Header checksum status: Unverified]  Source: 192.168.1.108  Destination: 128.119.245.12  Transmission Control Protocol, Src Port: 41287, Dst Port: 80, Seq: 1, Ack: 1, Len: 399  Source Port: 41287  Destination Port: 80  [Stream index: 2]  [TCP Segment Len: 399]  Sequence number: 1 (relative sequence number)  Sequence number (raw): 4114645580  [Next sequence number: 400 (relative sequence number)]  Acknowledgment number: 1 (relative ack number)  Acknowledgment number (raw): 2144254570  0101 .... = Header Length: 20 bytes (5)  Flags: 0x018 (PSH, ACK)  000. .... .... = Reserved: Not set  ...0 .... .... = Nonce: Not set  .... 0... .... = Congestion Window Reduced (CWR): Not set  .... .0.. .... = ECN-Echo: Not set  .... ..0. .... = Urgent: Not set  .... ...1 .... = Acknowledgment: Set  .... .... 1... = Push: Set  .... .... .0.. = Reset: Not set  .... .... ..0. = Syn: Not set  .... .... ...0 = Fin: Not set  [TCP Flags: ·······AP···]  Window size value: 513  [Calculated window size: 131328]  [Window size scaling factor: 256]  Checksum: 0x7ae0 [unverified]  [Checksum Status: Unverified]  Urgent pointer: 0  [SEQ/ACK analysis]  [iRTT: 0.116404000 seconds]  [Bytes in flight: 399]  [Bytes sent since last PSH flag: 399]  [Timestamps]  [Time since first frame in this TCP stream: 0.117990000 seconds]  [Time since previous frame in this TCP stream: 0.001586000 seconds]  TCP payload (399 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]**  [GET /wireshark-labs/HTTP-wireshark-file4.html HTTP/1.1\r\n]  [Severity level: Chat]  [Group: Sequence]  Request Method: GET  Request URI: /wireshark-labs/HTTP-wireshark-file4.html  Request Version: HTTP/1.1  Host: gaia.cs.umass.edu\r\n  User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:75.0) Gecko/20100101 Firefox/75.0\r\n  Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,\*/\*;q=0.8\r\n  Accept-Language: ru-RU,ru;q=0.8,en-US;q=0.5,en;q=0.3\r\n  Accept-Encoding: gzip, deflate\r\n  Connection: keep-alive\r\n  Upgrade-Insecure-Requests: 1\r\n  \r\n  [Full request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file4.html]  [HTTP request 1/3]  [Response in frame: 41]  [Next request in frame: 71]  **No. Time Source Destination Protocol Length Info**  **41 1.045327 128.119.245.12 192.168.1.108 HTTP 1127 HTTP/1.1 200 OK (text/html)**  Frame 41: 1127 bytes on wire (9016 bits), 1127 bytes captured (9016 bits) on interface \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}, id 0  Interface id: 0 (\Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2})  Interface name: \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}  Interface description: Беспроводная сеть  Encapsulation type: Ethernet (1)  Arrival Time: Apr 29, 2020 10:52:21.702627000 Финляндия (лето)  [Time shift for this packet: 0.000000000 seconds]  Epoch Time: 1588146741.702627000 seconds  [Time delta from previous captured frame: 0.010605000 seconds]  [Time delta from previous displayed frame: 0.127506000 seconds]  [Time since reference or first frame: 1.045327000 seconds]  Frame Number: 41  Frame Length: 1127 bytes (9016 bits)  Capture Length: 1127 bytes (9016 bits)  [Frame is marked: True]  [Frame is ignored: False]  [Protocols in frame: eth:ethertype:ip:tcp:http:data-text-lines]  [Coloring Rule Name: HTTP]  [Coloring Rule String: http || tcp.port == 80 || http2]  Ethernet II, Src: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30), Dst: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  Destination: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  Address: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  .... ..0. .... .... .... .... = LG bit: Globally unique address (factory default)  .... ...0 .... .... .... .... = IG bit: Individual address (unicast)  Source: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  Address: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  .... ..0. .... .... .... .... = LG bit: Globally unique address (factory default)  .... ...0 .... .... .... .... = IG bit: Individual address (unicast)  Type: IPv4 (0x0800)  Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.1.108  0100 .... = Version: 4  .... 0101 = Header Length: 20 bytes (5)  Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)  0000 00.. = Differentiated Services Codepoint: Default (0)  .... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)  Total Length: 1113  Identification: 0x8dd2 (36306)  Flags: 0x4000, Don't fragment  0... .... .... .... = Reserved bit: Not set  .1.. .... .... .... = Don't fragment: Set  ..0. .... .... .... = More fragments: Not set  Fragment offset: 0  Time to live: 50  Protocol: TCP (6)  Header checksum: 0x7f34 [validation disabled]  [Header checksum status: Unverified]  Source: 128.119.245.12  Destination: 192.168.1.108  Transmission Control Protocol, Src Port: 80, Dst Port: 41287, Seq: 1, Ack: 400, Len: 1073  Source Port: 80  Destination Port: 41287  [Stream index: 2]  [TCP Segment Len: 1073]  Sequence number: 1 (relative sequence number)  Sequence number (raw): 2144254570  [Next sequence number: 1074 (relative sequence number)]  Acknowledgment number: 400 (relative ack number)  Acknowledgment number (raw): 4114645979  0101 .... = Header Length: 20 bytes (5)  Flags: 0x018 (PSH, ACK)  000. .... .... = Reserved: Not set  ...0 .... .... = Nonce: Not set  .... 0... .... = Congestion Window Reduced (CWR): Not set  .... .0.. .... = ECN-Echo: Not set  .... ..0. .... = Urgent: Not set  .... ...1 .... = Acknowledgment: Set  .... .... 1... = Push: Set  .... .... .0.. = Reset: Not set  .... .... ..0. = Syn: Not set  .... .... ...0 = Fin: Not set  [TCP Flags: ·······AP···]  Window size value: 237  [Calculated window size: 30336]  [Window size scaling factor: 128]  Checksum: 0x372a [unverified]  [Checksum Status: Unverified]  Urgent pointer: 0  [SEQ/ACK analysis]  [iRTT: 0.116404000 seconds]  [Bytes in flight: 1073]  [Bytes sent since last PSH flag: 1073]  [Timestamps]  [Time since first frame in this TCP stream: 0.245496000 seconds]  [Time since previous frame in this TCP stream: 0.010605000 seconds]  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]**  **[HTTP/1.1 200 OK\r\n]**  [Severity level: Chat]  [Group: Sequence]  Response Version: HTTP/1.1  Status Code: 200  [Status Code Description: OK]  Response Phrase: OK  Date: Wed, 29 Apr 2020 07:52:20 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: Wed, 29 Apr 2020 05:59:03 GMT\r\n  ETag: "2ca-5a467a5301df9"\r\n  Accept-Ranges: bytes\r\n  Content-Length: 714\r\n  [Content length: 714]  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 1/3]  [Time since request: 0.127506000 seconds]  [Request in frame: 36]  [Next request in frame: 71]  [Next response in frame: 76]  [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)  <html>\n  <head>\n  <title>Lab2-4 file: Embedded URLs</title>\n  <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">\n  </head>\n  \n  <body bgcolor="#FFFFFF" text="#000000">\n  \n  <p>\n  <img src="http://gaia.cs.umass.edu/pearson.png" WIDTH="70" HEIGHT="41" > </p>\n  <p>This little HTML file is being served by gaia.cs.umass.edu. \n  It contains two embedded images. <br> The image above, also served from the \n  gaia.cs.umass.edu web site, is the logo of our publisher, Pearson. <br>\n  The image of our 5th edition book cover below is stored at, and served from, the www server caite.cs.umass.edu:</p>\n  <p align="left"><img src="http://manic.cs.umass.edu/~kurose/cover\_5th\_ed.jpg" width="168" height="220"></p>\n  </body>\n  </html>\n  **No. Time Source Destination Protocol Length Info**  **70 2.358824 192.168.1.108 128.119.245.12 HTTP 424 GET /~kurose/cover\_5th\_ed.jpg HTTP/1.1**  Frame 70: 424 bytes on wire (3392 bits), 424 bytes captured (3392 bits) on interface \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}, id 0  Interface id: 0 (\Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2})  Interface name: \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}  Interface description: Беспроводная сеть  Encapsulation type: Ethernet (1)  Arrival Time: Apr 29, 2020 10:52:23.016124000 Финляндия (лето)  [Time shift for this packet: 0.000000000 seconds]  Epoch Time: 1588146743.016124000 seconds  [Time delta from previous captured frame: 0.000612000 seconds]  [Time delta from previous displayed frame: 1.313497000 seconds]  [Time since reference or first frame: 2.358824000 seconds]  Frame Number: 70  Frame Length: 424 bytes (3392 bits)  Capture Length: 424 bytes (3392 bits)  [Frame is marked: True]  [Frame is ignored: False]  [Protocols in frame: eth:ethertype:ip:tcp:http]  [Coloring Rule Name: HTTP]  [Coloring Rule String: http || tcp.port == 80 || http2]  Ethernet II, Src: IntelCor\_4f:90:fc (60:57:18:4f:90:fc), Dst: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  Destination: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  Address: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  .... ..0. .... .... .... .... = LG bit: Globally unique address (factory default)  .... ...0 .... .... .... .... = IG bit: Individual address (unicast)  Source: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  Address: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  .... ..0. .... .... .... .... = LG bit: Globally unique address (factory default)  .... ...0 .... .... .... .... = IG bit: Individual address (unicast)  Type: IPv4 (0x0800)  Internet Protocol Version 4, Src: 192.168.1.108, Dst: 128.119.245.12  0100 .... = Version: 4  .... 0101 = Header Length: 20 bytes (5)  Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)  0000 00.. = Differentiated Services Codepoint: Default (0)  .... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)  Total Length: 410  Identification: 0x0ce5 (3301)  Flags: 0x4000, Don't fragment  0... .... .... .... = Reserved bit: Not set  .1.. .... .... .... = Don't fragment: Set  ..0. .... .... .... = More fragments: Not set  Fragment offset: 0  Time to live: 128  Protocol: TCP (6)  Header checksum: 0xb4e0 [validation disabled]  [Header checksum status: Unverified]  Source: 192.168.1.108  Destination: 128.119.245.12  Transmission Control Protocol, Src Port: 41288, Dst Port: 80, Seq: 1, Ack: 1, Len: 370  Source Port: 41288  Destination Port: 80  [Stream index: 3]  [TCP Segment Len: 370]  Sequence number: 1 (relative sequence number)  Sequence number (raw): 4153593008  [Next sequence number: 371 (relative sequence number)]  Acknowledgment number: 1 (relative ack number)  Acknowledgment number (raw): 1413878273  0101 .... = Header Length: 20 bytes (5)  Flags: 0x018 (PSH, ACK)  000. .... .... = Reserved: Not set  ...0 .... .... = Nonce: Not set  .... 0... .... = Congestion Window Reduced (CWR): Not set  .... .0.. .... = ECN-Echo: Not set  .... ..0. .... = Urgent: Not set  .... ...1 .... = Acknowledgment: Set  .... .... 1... = Push: Set  .... .... .0.. = Reset: Not set  .... .... ..0. = Syn: Not set  .... .... ...0 = Fin: Not set  [TCP Flags: ·······AP···]  Window size value: 513  [Calculated window size: 131328]  [Window size scaling factor: 256]  Checksum: 0x212f [unverified]  [Checksum Status: Unverified]  Urgent pointer: 0  [SEQ/ACK analysis]  [iRTT: 0.116380000 seconds]  [Bytes in flight: 370]  [Bytes sent since last PSH flag: 370]  [Timestamps]  [Time since first frame in this TCP stream: 0.819203000 seconds]  [Time since previous frame in this TCP stream: 0.702823000 seconds]  TCP payload (370 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]**  **[GET /~kurose/cover\_5th\_ed.jpg HTTP/1.1\r\n]**  [Severity level: Chat]  [Group: Sequence]  Request Method: GET  Request URI: /~kurose/cover\_5th\_ed.jpg  Request Version: HTTP/1.1  Host: manic.cs.umass.edu\r\n  User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:75.0) Gecko/20100101 Firefox/75.0\r\n  Accept: image/webp,\*/\*\r\n  Accept-Language: ru-RU,ru;q=0.8,en-US;q=0.5,en;q=0.3\r\n  Accept-Encoding: gzip, deflate\r\n  Connection: keep-alive\r\n  Referer: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file4.html\r\n  \r\n  [Full request URI: http://manic.cs.umass.edu/~kurose/cover\_5th\_ed.jpg]  [HTTP request 1/1]  [Response in frame: 161]  **No. Time Source Destination Protocol Length Info**  **71 2.359626 192.168.1.108 128.119.245.12 HTTP 410 GET /pearson.png HTTP/1.1**  Frame 71: 410 bytes on wire (3280 bits), 410 bytes captured (3280 bits) on interface \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}, id 0  Interface id: 0 (\Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2})  Interface name: \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}  Interface description: Беспроводная сеть  Encapsulation type: Ethernet (1)  Arrival Time: Apr 29, 2020 10:52:23.016926000 Финляндия (лето)  [Time shift for this packet: 0.000000000 seconds]  Epoch Time: 1588146743.016926000 seconds  [Time delta from previous captured frame: 0.000802000 seconds]  [Time delta from previous displayed frame: 0.000802000 seconds]  [Time since reference or first frame: 2.359626000 seconds]  Frame Number: 71  Frame Length: 410 bytes (3280 bits)  Capture Length: 410 bytes (3280 bits)  [Frame is marked: True]  [Frame is ignored: False]  [Protocols in frame: eth:ethertype:ip:tcp:http]  [Coloring Rule Name: HTTP]  [Coloring Rule String: http || tcp.port == 80 || http2]  Ethernet II, Src: IntelCor\_4f:90:fc (60:57:18:4f:90:fc), Dst: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  Destination: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  Address: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  .... ..0. .... .... .... .... = LG bit: Globally unique address (factory default)  .... ...0 .... .... .... .... = IG bit: Individual address (unicast)  Source: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  Address: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  .... ..0. .... .... .... .... = LG bit: Globally unique address (factory default)  .... ...0 .... .... .... .... = IG bit: Individual address (unicast)  Type: IPv4 (0x0800)  Internet Protocol Version 4, Src: 192.168.1.108, Dst: 128.119.245.12  0100 .... = Version: 4  .... 0101 = Header Length: 20 bytes (5)  Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)  0000 00.. = Differentiated Services Codepoint: Default (0)  .... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)  Total Length: 396  Identification: 0x0ce6 (3302)  Flags: 0x4000, Don't fragment  0... .... .... .... = Reserved bit: Not set  .1.. .... .... .... = Don't fragment: Set  ..0. .... .... .... = More fragments: Not set  Fragment offset: 0  Time to live: 128  Protocol: TCP (6)  Header checksum: 0xb4ed [validation disabled]  [Header checksum status: Unverified]  Source: 192.168.1.108  Destination: 128.119.245.12  Transmission Control Protocol, Src Port: 41287, Dst Port: 80, Seq: 400, Ack: 1074, Len: 356  Source Port: 41287  Destination Port: 80  [Stream index: 2]  [TCP Segment Len: 356]  Sequence number: 400 (relative sequence number)  Sequence number (raw): 4114645979  [Next sequence number: 756 (relative sequence number)]  Acknowledgment number: 1074 (relative ack number)  Acknowledgment number (raw): 2144255643  0101 .... = Header Length: 20 bytes (5)  Flags: 0x018 (PSH, ACK)  000. .... .... = Reserved: Not set  ...0 .... .... = Nonce: Not set  .... 0... .... = Congestion Window Reduced (CWR): Not set  .... .0.. .... = ECN-Echo: Not set  .... ..0. .... = Urgent: Not set  .... ...1 .... = Acknowledgment: Set  .... .... 1... = Push: Set  .... .... .0.. = Reset: Not set  .... .... ..0. = Syn: Not set  .... .... ...0 = Fin: Not set  [TCP Flags: ·······AP···]  Window size value: 509  [Calculated window size: 130304]  [Window size scaling factor: 256]  Checksum: 0xb2a4 [unverified]  [Checksum Status: Unverified]  Urgent pointer: 0  [SEQ/ACK analysis]  [iRTT: 0.116404000 seconds]  [Bytes in flight: 356]  [Bytes sent since last PSH flag: 356]  [Timestamps]  [Time since first frame in this TCP stream: 1.559795000 seconds]  [Time since previous frame in this TCP stream: 1.274427000 seconds]  TCP payload (356 bytes)  **Hypertext Transfer Protocol**  **GET /pearson.png HTTP/1.1\r\n**  **[Expert Info (Chat/Sequence): GET /pearson.png HTTP/1.1\r\n]**  **[GET /pearson.png HTTP/1.1\r\n]**  [Severity level: Chat]  [Group: Sequence]  Request Method: GET  Request URI: /pearson.png  Request Version: HTTP/1.1  Host: gaia.cs.umass.edu\r\n  User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:75.0) Gecko/20100101 Firefox/75.0\r\n  Accept: image/webp,\*/\*\r\n  Accept-Language: ru-RU,ru;q=0.8,en-US;q=0.5,en;q=0.3\r\n  Accept-Encoding: gzip, deflate\r\n  Connection: keep-alive\r\n  Referer: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file4.html\r\n  \r\n  [Full request URI: http://gaia.cs.umass.edu/pearson.png]  [HTTP request 2/3]  [Prev request in frame: 36]  [Response in frame: 76]  [Next request in frame: 113]  **No. Time Source Destination Protocol Length Info**  **76 2.494807 128.119.245.12 192.168.1.108 HTTP 745 HTTP/1.1 200 OK (PNG)**  Frame 76: 745 bytes on wire (5960 bits), 745 bytes captured (5960 bits) on interface \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}, id 0  Interface id: 0 (\Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2})  Interface name: \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}  Interface description: Беспроводная сеть  Encapsulation type: Ethernet (1)  Arrival Time: Apr 29, 2020 10:52:23.152107000 Финляндия (лето)  [Time shift for this packet: 0.000000000 seconds]  Epoch Time: 1588146743.152107000 seconds  [Time delta from previous captured frame: 0.000000000 seconds]  [Time delta from previous displayed frame: 0.135181000 seconds]  [Time since reference or first frame: 2.494807000 seconds]  Frame Number: 76  Frame Length: 745 bytes (5960 bits)  Capture Length: 745 bytes (5960 bits)  [Frame is marked: True]  [Frame is ignored: False]  [Protocols in frame: eth:ethertype:ip:tcp:http:png]  [Coloring Rule Name: HTTP]  [Coloring Rule String: http || tcp.port == 80 || http2]  Ethernet II, Src: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30), Dst: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  Destination: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  Address: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  .... ..0. .... .... .... .... = LG bit: Globally unique address (factory default)  .... ...0 .... .... .... .... = IG bit: Individual address (unicast)  Source: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  Address: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  .... ..0. .... .... .... .... = LG bit: Globally unique address (factory default)  .... ...0 .... .... .... .... = IG bit: Individual address (unicast)  Type: IPv4 (0x0800)  Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.1.108  0100 .... = Version: 4  .... 0101 = Header Length: 20 bytes (5)  Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)  0000 00.. = Differentiated Services Codepoint: Default (0)  .... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)  Total Length: 731  Identification: 0x8dd5 (36309)  Flags: 0x4000, Don't fragment  0... .... .... .... = Reserved bit: Not set  .1.. .... .... .... = Don't fragment: Set  ..0. .... .... .... = More fragments: Not set  Fragment offset: 0  Time to live: 50  Protocol: TCP (6)  Header checksum: 0x80af [validation disabled]  [Header checksum status: Unverified]  Source: 128.119.245.12  Destination: 192.168.1.108  Transmission Control Protocol, Src Port: 80, Dst Port: 41287, Seq: 3994, Ack: 756, Len: 691  Source Port: 80  Destination Port: 41287  [Stream index: 2]  [TCP Segment Len: 691]  Sequence number: 3994 (relative sequence number)  Sequence number (raw): 2144258563  [Next sequence number: 4685 (relative sequence number)]  Acknowledgment number: 756 (relative ack number)  Acknowledgment number (raw): 4114646335  0101 .... = Header Length: 20 bytes (5)  Flags: 0x018 (PSH, ACK)  000. .... .... = Reserved: Not set  ...0 .... .... = Nonce: Not set  .... 0... .... = Congestion Window Reduced (CWR): Not set  .... .0.. .... = ECN-Echo: Not set  .... ..0. .... = Urgent: Not set  .... ...1 .... = Acknowledgment: Set  .... .... 1... = Push: Set  .... .... .0.. = Reset: Not set  .... .... ..0. = Syn: Not set  .... .... ...0 = Fin: Not set  [TCP Flags: ·······AP···]  Window size value: 245  [Calculated window size: 31360]  [Window size scaling factor: 128]  Checksum: 0xfa3e [unverified]  [Checksum Status: Unverified]  Urgent pointer: 0  [SEQ/ACK analysis]  [iRTT: 0.116404000 seconds]  [Bytes in flight: 3611]  [Bytes sent since last PSH flag: 3611]  [Timestamps]  [Time since first frame in this TCP stream: 1.694976000 seconds]  [Time since previous frame in this TCP stream: 0.000000000 seconds]  TCP payload (691 bytes)  TCP segment data (691 bytes)  **[3 Reassembled TCP Segments (3611 bytes): #74(1460), #75(1460), #76(691)]**  **[Frame: 74, payload: 0-1459 (1460 bytes)]**  **[Frame: 75, payload: 1460-2919 (1460 bytes)]**  **[Frame: 76, payload: 2920-3610 (691 bytes)]**  **[Segment count: 3]**  **[Reassembled TCP length: 3611]**  [Reassembled TCP Data: 485454502f312e3120323030204f4b0d0a446174653a2057…]  **Hypertext Transfer Protocol**  **HTTP/1.1 200 OK\r\n**  [Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]  [HTTP/1.1 200 OK\r\n]  [Severity level: Chat]  [Group: Sequence]  Response Version: HTTP/1.1  Status Code: 200  [Status Code Description: OK]  Response Phrase: OK  Date: Wed, 29 Apr 2020 07:52:21 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**  **[Content length: 3267]**  Keep-Alive: timeout=5, max=99\r\n  Connection: Keep-Alive\r\n  **Content-Type: image/png\r\n**  **\r\n**  [HTTP response 2/3]  [Time since request: 0.135181000 seconds]  [Prev request in frame: 36]  [Prev response in frame: 41]  [Request in frame: 71]  [Next request in frame: 113]  [Next response in frame: 163]  [Request URI: http://gaia.cs.umass.edu/pearson.png]  File Data: 3267 bytes  Portable Network Graphics  PNG Signature: 89504e470d0a1a0a  Image Header (IHDR)  Len: 13  Chunk: IHDR  ..0. .... .... .... .... .... .... .... = Ancillary: This is a CRITICAL chunk  .... .... ..0. .... .... .... .... .... = Private: This is a PUBLIC chunk  .... .... .... .... .... .... ..0. .... = Safe To Copy: This chunk is NOT safe to copy  Width: 253  Height: 199  Bit Depth: 8  Colour Type: Indexed-colour (3)  Compression Method: Deflate (0)  Filter Method: Adaptive (0)  Interlace Method: No interlace (0)  CRC: 0xe50aa505  Palette (PLTE)  Len: 189  Chunk: PLTE  ..0. .... .... .... .... .... .... .... = Ancillary: This is a CRITICAL chunk  .... .... ..0. .... .... .... .... .... = Private: This is a PUBLIC chunk  .... .... .... .... .... .... ..0. .... = Safe To Copy: This chunk is NOT safe to copy  Data  CRC: 0xbd86a38a  Image data chunk (IDAT)  Len: 3009  Chunk: IDAT  ..0. .... .... .... .... .... .... .... = Ancillary: This is a CRITICAL chunk  .... .... ..0. .... .... .... .... .... = Private: This is a PUBLIC chunk  .... .... .... .... .... .... ..0. .... = Safe To Copy: This chunk is NOT safe to copy  Data  CRC: 0x93ccbcbc  Image Trailer (IEND)  Len: 0  Chunk: IEND  ..0. .... .... .... .... .... .... .... = Ancillary: This is a CRITICAL chunk  .... .... ..0. .... .... .... .... .... = Private: This is a PUBLIC chunk  .... .... .... .... .... .... ..0. .... = Safe To Copy: This chunk is NOT safe to copy  CRC: 0xae426082  **No. Time Source Destination Protocol Length Info**  **161 2.753177 128.119.245.12 192.168.1.108 HTTP 632 HTTP/1.1 200 OK (JPEG JFIF image)**  Frame 161: 632 bytes on wire (5056 bits), 632 bytes captured (5056 bits) on interface \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}, id 0  Interface id: 0 (\Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2})  Interface name: \Device\NPF\_{515AB600-9DD9-44FB-9043-185B381F60A2}  Interface description: Беспроводная сеть  Encapsulation type: Ethernet (1)  Arrival Time: Apr 29, 2020 10:52:23.410477000 Финляндия (лето)  [Time shift for this packet: 0.000000000 seconds]  Epoch Time: 1588146743.410477000 seconds  [Time delta from previous captured frame: 0.000000000 seconds]  [Time delta from previous displayed frame: 0.090218000 seconds]  [Time since reference or first frame: 2.753177000 seconds]  Frame Number: 161  Frame Length: 632 bytes (5056 bits)  Capture Length: 632 bytes (5056 bits)  [Frame is marked: True]  [Frame is ignored: False]  [Protocols in frame: eth:ethertype:ip:tcp:http:image-jfif]  [Coloring Rule Name: HTTP]  [Coloring Rule String: http || tcp.port == 80 || http2]  Ethernet II, Src: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30), Dst: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  Destination: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  Address: IntelCor\_4f:90:fc (60:57:18:4f:90:fc)  .... ..0. .... .... .... .... = LG bit: Globally unique address (factory default)  .... ...0 .... .... .... .... = IG bit: Individual address (unicast)  Source: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  Address: BelkinIn\_c9:a4:30 (60:38:e0:c9:a4:30)  .... ..0. .... .... .... .... = LG bit: Globally unique address (factory default)  .... ...0 .... .... .... .... = IG bit: Individual address (unicast)  Type: IPv4 (0x0800)  Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.1.108  0100 .... = Version: 4  .... 0101 = Header Length: 20 bytes (5)  Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)  0000 00.. = Differentiated Services Codepoint: Default (0)  .... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)  Total Length: 618  Identification: 0x2fa3 (12195)  Flags: 0x4000, Don't fragment  0... .... .... .... = Reserved bit: Not set  .1.. .... .... .... = Don't fragment: Set  ..0. .... .... .... = More fragments: Not set  Fragment offset: 0  Time to live: 49  Protocol: TCP (6)  Header checksum: 0xe052 [validation disabled]  [Header checksum status: Unverified]  Source: 128.119.245.12  Destination: 192.168.1.108  Transmission Control Protocol, Src Port: 80, Dst Port: 41288, Seq: 100741, Ack: 371, Len: 578  Source Port: 80  Destination Port: 41288  [Stream index: 3]  [TCP Segment Len: 578]  Sequence number: 100741 (relative sequence number)  Sequence number (raw): 1413979013  [Next sequence number: 101319 (relative sequence number)]  Acknowledgment number: 371 (relative ack number)  Acknowledgment number (raw): 4153593378  0101 .... = Header Length: 20 bytes (5)  Flags: 0x018 (PSH, ACK)  000. .... .... = Reserved: Not set  ...0 .... .... = Nonce: Not set  .... 0... .... = Congestion Window Reduced (CWR): Not set  .... .0.. .... = ECN-Echo: Not set  .... ..0. .... = Urgent: Not set  .... ...1 .... = Acknowledgment: Set  .... .... 1... = Push: Set  .... .... .0.. = Reset: Not set  .... .... ..0. = Syn: Not set  .... .... ...0 = Fin: Not set  [TCP Flags: ·······AP···]  Window size value: 237  [Calculated window size: 30336]  [Window size scaling factor: 128]  Checksum: 0x6422 [unverified]  [Checksum Status: Unverified]  Urgent pointer: 0  [SEQ/ACK analysis]  [iRTT: 0.116380000 seconds]  [Bytes in flight: 16638]  [Bytes sent since last PSH flag: 101318]  [Timestamps]  [Time since first frame in this TCP stream: 1.213556000 seconds]  [Time since previous frame in this TCP stream: 0.000000000 seconds]  TCP payload (578 bytes)  TCP segment data (578 bytes)  [**70 Reassembled TCP Segments (101318 bytes): #77(1460), #78(1460), #79(1460), #80(1460), #81(1460), #82(1460), #85(1460), #86(1460), #87(1460), #88(1460), #90(1460), #91(1460), #92(1460), #93(1460), #94(1460), #95(1460), #97(1460), #98(1460]**  **[Frame: 77, payload: 0-1459 (1460 bytes)]**  **[Frame: 78, payload: 1460-2919 (1460 bytes)]**  **[Frame: 79, payload: 2920-4379 (1460 bytes)]**  **[Frame: 80, payload: 4380-5839 (1460 bytes)]**  **[Frame: 81, payload: 5840-7299 (1460 bytes)]**  **[Frame: 82, payload: 7300-8759 (1460 bytes)]**  **[Frame: 85, payload: 8760-10219 (1460 bytes)]**  **[Frame: 86, payload: 10220-11679 (1460 bytes)]**  **[Frame: 87, payload: 11680-13139 (1460 bytes)]**  **[Frame: 88, payload: 13140-14599 (1460 bytes)]**  **[Frame: 90, payload: 14600-16059 (1460 bytes)]**  **[Frame: 91, payload: 16060-17519 (1460 bytes)]**  **[Frame: 92, payload: 17520-18979 (1460 bytes)]**  **[Frame: 93, payload: 18980-20439 (1460 bytes)]**  **[Frame: 94, payload: 20440-21899 (1460 bytes)]**  **[Frame: 95, payload: 21900-23359 (1460 bytes)]**  **[Frame: 97, payload: 23360-24819 (1460 bytes)]**  **[Frame: 98, payload: 24820-26279 (1460 bytes)]**  **[Frame: 99, payload: 26280-27739 (1460 bytes)]**  **[Frame: 100, payload: 27740-29199 (1460 bytes)]**  **[Frame: 101, payload: 29200-30659 (1460 bytes)]**  **[Frame: 102, payload: 30660-32119 (1460 bytes)]**  **[Frame: 103, payload: 32120-33579 (1460 bytes)]**  **[Frame: 104, payload: 33580-35039 (1460 bytes)]**  **[Frame: 106, payload: 35040-36499 (1460 bytes)]**  **[Frame: 107, payload: 36500-37959 (1460 bytes)]**  **[Frame: 108, payload: 37960-39419 (1460 bytes)]**  **[Frame: 109, payload: 39420-40879 (1460 bytes)]**  **[Frame: 110, payload: 40880-42339 (1460 bytes)]**  **[Frame: 111, payload: 42340-43799 (1460 bytes)]**  **[Frame: 117, payload: 43800-45259 (1460 bytes)]**  **[Frame: 118, payload: 45260-46719 (1460 bytes)]**  **[Frame: 120, payload: 46720-48179 (1460 bytes)]**  **[Frame: 121, payload: 48180-49639 (1460 bytes)]**  **[Frame: 123, payload: 49640-51099 (1460 bytes)]**  **[Frame: 124, payload: 51100-52559 (1460 bytes)]**  **[Frame: 125, payload: 52560-54019 (1460 bytes)]**  **[Frame: 126, payload: 54020-55479 (1460 bytes)]**  **[Frame: 128, payload: 55480-56939 (1460 bytes)]**  **[Frame: 129, payload: 56940-58399 (1460 bytes)]**  **[Frame: 130, payload: 58400-59859 (1460 bytes)]**  **[Frame: 131, payload: 59860-61319 (1460 bytes)]**  **[Frame: 132, payload: 61320-62779 (1460 bytes)]**  **[Frame: 133, payload: 62780-64239 (1460 bytes)]**  **[Frame: 135, payload: 64240-65699 (1460 bytes)]**  **[Frame: 136, payload: 65700-67159 (1460 bytes)]**  **[Frame: 137, payload: 67160-68619 (1460 bytes)]**  **[Frame: 138, payload: 68620-70079 (1460 bytes)]**  **[Frame: 139, payload: 70080-71539 (1460 bytes)]**  **[Frame: 140, payload: 71540-72999 (1460 bytes)]**  **[Frame: 141, payload: 73000-74459 (1460 bytes)]**  **[Frame: 142, payload: 74460-75919 (1460 bytes)]**  **[Frame: 143, payload: 75920-77379 (1460 bytes)]**  **[Frame: 144, payload: 77380-78839 (1460 bytes)]**  **[Frame: 145, payload: 78840-80299 (1460 bytes)]**  **[Frame: 146, payload: 80300-81759 (1460 bytes)]**  **[Frame: 147, payload: 81760-83219 (1460 bytes)]**  **[Frame: 148, payload: 83220-84679 (1460 bytes)]**  **[Frame: 150, payload: 84680-86139 (1460 bytes)]**  **[Frame: 151, payload: 86140-87599 (1460 bytes)]**  **[Frame: 152, payload: 87600-89059 (1460 bytes)]**  **[Frame: 153, payload: 89060-90519 (1460 bytes)]**  **[Frame: 154, payload: 90520-91979 (1460 bytes)]**  **[Frame: 155, payload: 91980-93439 (1460 bytes)]**  **[Frame: 156, payload: 93440-94899 (1460 bytes)]**  **[Frame: 157, payload: 94900-96359 (1460 bytes)]**  **[Frame: 158, payload: 96360-97819 (1460 bytes)]**  **[Frame: 159, payload: 97820-99279 (1460 bytes)]**  **[Frame: 160, payload: 99280-100739 (1460 bytes)]**  **[Frame: 161, payload: 100740-101317 (578 bytes)]**  **[Segment count: 70]**  **[Reassembled TCP length: 101318]**  **[Reassembled TCP Data: 485454502f312e3120323030204f4b0d0a446174653a2057…]**  **Hypertext Transfer Protocol**  **HTTP/1.1 200 OK\r\n**  [Expert Info (Chat/Sequence): HTTP/1.1 200 OK\r\n]  [HTTP/1.1 200 OK\r\n]  [Severity level: Chat]  [Group: Sequence]  Response Version: HTTP/1.1  Status Code: 200  [Status Code Description: OK]  Response Phrase: OK  Date: Wed, 29 Apr 2020 07:52:21 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  [Content length: 100968]  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: 0.394353000 seconds]  [Request in frame: 70]  [Request URI: http://manic.cs.umass.edu/~kurose/cover\_5th\_ed.jpg]  File Data: 100968 bytes  JPEG File Interchange Format  Marker: Start of Image (0xffd8)  Marker segment: Reserved for application segments - 0 (0xFFE0)  Marker: Reserved for application segments - 0 (0xffe0)  Length: 16  Identifier: JFIF  Version: 1.2  Major Version: 1  Minor Version: 2  Units: Dots per inch (1)  Xdensity: 72  Ydensity: 72  Xthumbnail: 0  Ythumbnail: 0  Marker segment: Reserved for application segments - 1 (0xFFE1)  Marker: Reserved for application segments - 1 (0xffe1)  Length: 9469  Identifier: Exif  Endianness: big endian  Start offset of IFD starting from the TIFF header start: 8 bytes  Number of fields in this IFD: 7  Exif Tag: Orientation (274)  Type: SHORT (3)  Count: 1  Value offset from start of TIFF header: 65536  Exif Tag: XResolution (282)  Type: RATIONAL (5)  Count: 1  Value offset from start of TIFF header: 98  Exif Tag: YResolution (283)  Type: RATIONAL (5)  Count: 1  Value offset from start of TIFF header: 106  Exif Tag: ResolutionUnit (296)  Type: SHORT (3)  Count: 1  Value offset from start of TIFF header: 131072  Exif Tag: Software (305)  Type: ASCII (2)  Count: 28  Value offset from start of TIFF header: 114  Exif Tag: DateTime (306)  Type: ASCII (2)  Count: 20  Value offset from start of TIFF header: 142  Exif Tag: Exif IFD Pointer (34665)  Type: LONG (4)  Count: 1  Value offset from start of TIFF header: 164  Offset to next IFD from start of TIFF header: 208 bytes  Number of fields in this IFD: 6  Exif Tag: Compression (259)  Type: SHORT (3)  Count: 1  Value offset from start of TIFF header: 393216  Exif Tag: XResolution (282)  Type: RATIONAL (5)  Count: 1  Value offset from start of TIFF header: 286  Exif Tag: YResolution (283)  Type: RATIONAL (5)  Count: 1  Value offset from start of TIFF header: 294  Exif Tag: ResolutionUnit (296)  Type: SHORT (3)  Count: 1  Value offset from start of TIFF header: 131072  Exif Tag: JPEGInterchangeFormat (513)  Type: LONG (4)  Count: 1  Value offset from start of TIFF header: 302  Exif Tag: JPEGInterchangeFormatLength (514)  Type: LONG (4)  Count: 1  Value offset from start of TIFF header: 9159  Offset to next IFD from start of TIFF header: 0 bytes  Marker segment: Reserved for application segments - 13 (0xFFED)  Marker: Reserved for application segments - 13 (0xffed)  Length: 10800  Remaining segment data: 10798 bytes  Marker segment: Reserved for application segments - 1 (0xFFE1)  Marker: Reserved for application segments - 1 (0xffe1)  Length: 4046  Identifier: http://ns.adobe.com/xap/1.0/ (Unknown identifier)  Remaining segment data: 4015 bytes  Marker segment: Reserved for application segments - 2 (0xFFE2)  Marker: Reserved for application segments - 2 (0xffe2)  Length: 3160  Identifier: ICC\_PROFILE (Unknown identifier)  Remaining segment data: 3146 bytes  Marker segment: Reserved for application segments - 14 (0xFFEE)  Marker: Reserved for application segments - 14 (0xffee)  Length: 14  Remaining segment data: 12 bytes  Marker segment: Define quantization table(s) (0xFFDB)  Marker: Define quantization table(s) (0xffdb)  Length: 132  Remaining segment data: 130 bytes  Start of Frame header: Start of Frame (non-differential, Huffman coding) - Baseline DCT (0xFFC0)  Marker: Start of Frame (non-differential, Huffman coding) - Baseline DCT (0xffc0)  Length: 17  Sample Precision (bits): 8  Lines: 301  Samples per line: 244  Number of image components in frame: 3  Component identifier: 1  0001 .... = Horizontal sampling factor: 1  .... 0001 = Vertical sampling factor: 1  Quantization table destination selector: 0  Component identifier: 2  0001 .... = Horizontal sampling factor: 1  .... 0001 = Vertical sampling factor: 1  Quantization table destination selector: 1  Component identifier: 3  0001 .... = Horizontal sampling factor: 1  .... 0001 = Vertical sampling factor: 1  Quantization table destination selector: 1  Marker segment: Define restart interval (0xFFDD)  Marker: Define restart interval (0xffdd)  Length: 4  Remaining segment data: 2 bytes  Marker segment: Define Huffman table(s) (0xFFC4)  Marker: Define Huffman table(s) (0xffc4)  Length: 418  Remaining segment data: 416 bytes  Start of Segment header: Start of Scan (0xFFDA)  Marker: Start of Scan (0xffda)  Length: 12  Number of image components in scan: 3  Scan component selector: 1  0000 .... = DC entropy coding table destination selector: 0  .... 0000 = AC entropy coding table destination selector: 0  Scan component selector: 2  0001 .... = DC entropy coding table destination selector: 1  .... 0001 = AC entropy coding table destination selector: 1  Scan component selector: 3  0001 .... = DC entropy coding table destination selector: 1  .... 0001 = AC entropy coding table destination selector: 1  Start of spectral or predictor selection: 0  End of spectral selection: 63  0000 .... = Successive approximation bit position high: 0  .... 0000 = Successive approximation bit position low or point transform: 0  Entropy-coded segment (dissection is not yet implemented): 9f7fce057fce057fce277e74ff00ce277e54fe65fe65fe54…  Marker: Restart interval termination - Restart with modulo 8 count 0 (0xffd0)  Entropy-coded segment (dissection is not yet implemented): f7effcfae3ff00584ff233ff00066ffc49f56c55f7fe2aec…  Marker: Restart interval termination - Restart with modulo 8 count 1 (0xffd1)  Entropy-coded segment (dissection is not yet implemented): f7effcfae3ff00584ff233ff00066ffc49f56c55f7fe2aec…  Marker: Restart interval termination - Restart with modulo 8 count 2 (0xffd2)  Entropy-coded segment (dissection is not yet implemented): f7effcfae3ff00584ff233ff00066ffc49f56c55f7fe2aec…  Marker: Restart interval termination - Restart with modulo 8 count 3 (0xffd3)  Entropy-coded segment (dissection is not yet implemented): f7effcfae3ff00584ff233ff00066ffc49f56c55f7c5d5d5…  Marker: Restart interval termination - Restart with modulo 8 count 4 (0xffd4)  Entropy-coded segment (dissection is not yet implemented): f7effcfae3ff00584ff233ff00066ffc49f56c55f47ffce4…  Marker: Restart interval termination - Restart with modulo 8 count 5 (0xffd5)  Entropy-coded segment (dissection is not yet implemented): f7effcfae3ff00584ff233ff00066ffc49f56c55f7fe2afc…  Marker: Restart interval termination - Restart with modulo 8 count 6 (0xffd6)  Entropy-coded segment (dissection is not yet implemented): f7effcfae3ff00584ff233ff00066ffc49f56c55f7fe2aec…  Marker: Restart interval termination - Restart with modulo 8 count 7 (0xffd7)  Entropy-coded segment (dissection is not yet implemented): f7effcfae3ff00584ff233ff00066ffc49f56c55f7fe2aec…  Marker: Restart interval termination - Restart with modulo 8 count 0 (0xffd0)  Entropy-coded segment (dissection is not yet implemented): f7effcfae3ff00584ff233ff00066ffc49f56c55f7fe2aec…  Marker: Restart interval termination - Restart with modulo 8 count 1 (0xffd1)  Entropy-coded segment (dissection is not yet implemented): f875a359da4ba6db492dac323b73e4ec8a49a3b0dc919958…  Marker: Restart interval termination - Restart with modulo 8 count 2 (0xffd2)  Entropy-coded segment (dissection is not yet implemented): f885a17fc72ad7fe7a7fc9c6ccbc447080f3faefefa5f0fb…  Marker: Restart interval termination - Restart with modulo 8 count 3 (0xffd3)  Entropy-coded segment (dissection is not yet implemented): f983f9397da5ea3e50d2f48b5fc96d0fce7ab5835cfd775a…  Marker: Restart interval termination - Restart with modulo 8 count 4 (0xffd4)  Entropy-coded segment (dissection is not yet implemented): f965f927e7bf31f96a1f295a5ee8535f7956e6592dff0048…  Marker: Restart interval termination - Restart with modulo 8 count 5 (0xffd5)  Entropy-coded segment (dissection is not yet implemented): f98df97f6934bf95be527d2ece0bad4e3b9bc68ae6e8cec2…  Marker: Restart interval termination - Restart with modulo 8 count 6 (0xffd6)  Entropy-coded segment (dissection is not yet implemented): f915e51d6cff00cabdb5d327d42e66b6862bf59343d1621f…  Marker: Restart interval termination - Restart with modulo 8 count 7 (0xffd7)  Entropy-coded segment (dissection is not yet implemented): f8d7e53b336be5ed2a51afb452eb72c71bf952ce0bff00ac…  Marker: Restart interval termination - Restart with modulo 8 count 0 (0xffd0)  Entropy-coded segment (dissection is not yet implemented): f267fce3785ff9531e4f8dc456769707515bcb8215a7b976…  Marker: Restart interval termination - Restart with modulo 8 count 1 (0xffd1)  Entropy-coded segment (dissection is not yet implemented): f9d3f933f9dde58f2c7907ca9e53b8d0b58d4bcc5a5c5792…  Marker: Restart interval termination - Restart with modulo 8 count 2 (0xffd2)  Entropy-coded segment (dissection is not yet implemented): f8a3e50b49ae74eb6d334cba820bbd5a669757bd07f796d6…  Marker: Restart interval termination - Restart with modulo 8 count 3 (0xffd3)  Entropy-coded segment (dissection is not yet implemented): e1ff00f388ff00f3803e57fceffc8df24fe636a9f9953686…  Marker: Restart interval termination - Restart with modulo 8 count 4 (0xffd4)  Entropy-coded segment (dissection is not yet implemented): 9aff00ce05ca21ff009c51fcb07b790c174575c8de60d221…  Marker: Restart interval termination - Restart with modulo 8 count 5 (0xffd5)  Entropy-coded segment (dissection is not yet implemented): 94ff00ce07db349ff38aff00960ed5094d68200dc6bfee7a…  Marker: Restart interval termination - Restart with modulo 8 count 6 (0xffd6)  Entropy-coded segment (dissection is not yet implemented): 2fff009c29f3f0d13fe71a3f2df4cbad3643650aeb08b7c8…  Marker: Restart interval termination - Restart with modulo 8 count 7 (0xffd7)  Entropy-coded segment (dissection is not yet implemented): f26ffce3079d1fcbbf969e453fa5d67834dfad34ba44f772…  Marker: Restart interval termination - Restart with modulo 8 count 0 (0xffd0)  Entropy-coded segment (dissection is not yet implemented): f80f25b491c30cacd1149e3f5502cb1b381cda3a3aab1653…  Marker: Restart interval termination - Restart with modulo 8 count 1 (0xffd1)  Entropy-coded segment (dissection is not yet implemented): f8c9e52fcbdd035fd06c751bcbcbe8af6e7d6f52189e354a…  Marker: Restart interval termination - Restart with modulo 8 count 2 (0xffd2)  Entropy-coded segment (dissection is not yet implemented): f943f97089fe0fd25aaa246f5e8c53995ff48940a0041153…  Marker: Restart interval termination - Restart with modulo 8 count 3 (0xffd3)  Entropy-coded segment (dissection is not yet implemented): f8c5e56f3dc1a5689a4e8e91c9ea41eaaceca10b132ccef5…  Marker: Restart interval termination - Restart with modulo 8 count 4 (0xffd4)  Entropy-coded segment (dissection is not yet implemented): f85be5c82e62bdd1ee6c385e5fc93f2874fe2fcc709000d5…  Marker: Restart interval termination - Restart with modulo 8 count 5 (0xffd5)  Entropy-coded segment (dissection is not yet implemented): f8cbf97d0da5b7e8fbcb8bd9a3bfbab69934db4f4e88c826…  Marker: Restart interval termination - Restart with modulo 8 count 6 (0xffd6)  Entropy-coded segment (dissection is not yet implemented): e2dff388ff00f3ec3d53f3ebf233c8bf9dda6ffce40a7912…  Marker: Restart interval termination - Restart with modulo 8 count 7 (0xffd7)  Entropy-coded segment (dissection is not yet implemented): f7effcfae3ff00584ff233ff00066ffc49f56c55f7fe2aec…  Marker: Restart interval termination - Restart with modulo 8 count 0 (0xffd0)  Entropy-coded segment (dissection is not yet implemented): f7effcfae3ff00584ff233ff00066ffc49f56c55f7fe2aec…  Marker: Restart interval termination - Restart with modulo 8 count 1 (0xffd1)  Entropy-coded segment (dissection is not yet implemented): f7effcfae3ff00584ff233ff00066ffc49f56c55f7fe2aec…  Marker: Restart interval termination - Restart with modulo 8 count 2 (0xffd2)  Entropy-coded segment (dissection is not yet implemented): f7effcfae3ff00584ff233ff00066ffc49f56c55f7fe2aec…  Marker: Restart interval termination - Restart with modulo 8 count 3 (0xffd3)  Entropy-coded segment (dissection is not yet implemented): f7effcfae3ff00584ff233ff00066ffc49f56c55f7fe2aec…  Marker: Restart interval termination - Restart with modulo 8 count 4 (0xffd4)  Entropy-coded segment (dissection is not yet implemented): f4effcfb875afcfdb4ff009c31fc9bb7f257e5a7e5ff0098…  Marker: End of Image (0xffd9) |