```
Time
                                                                   Protocol Length Info
No.
                                             Destination
                      Source
  2955 12.033640
                      192.168.88.236
                                            128.119.245.12
                                                                   HTTP
                                                                            534
                                                                                   GET /wireshark-labs/HTTP-wireshark-file4.html
HTTP/1.1
Frame 2955: 534 bytes on wire (4272 bits), 534 bytes captured (4272 bits) on interface \Device\NPF_{2E82360E-7527-4C7F-8D52-
B6EC2879C24D}, id 0
Ethernet II, Src: CloudNet_21:54:15 (0c:96:e6:21:54:15), Dst: Routerbo_45:e9:ba (74:4d:28:45:e9:ba)
Internet Protocol Version 4, Src: 192.168.88.236, Dst: 128.119.245.12
Transmission Control Protocol, Src Port: 53912, Dst Port: 80, Seq: 1, Ack: 1, Len: 480
   Source Port: 53912
   Destination Port: 80
    [Stream index: 26]
    [TCP Segment Len: 480]
   Sequence number: 1 (relative sequence number)
   Sequence number (raw): 4087411892
    [Next sequence number: 481
                                 (relative sequence number)]
   Acknowledgment number: 1
                               (relative ack number)
   Acknowledgment number (raw): 891334759
   0101 .... = Header Length: 20 bytes (5)
   Flags: 0x018 (PSH, ACK)
   Window size value: 513
    [Calculated window size: 131328]
    [Window size scaling factor: 256]
   Checksum: 0x2e16 [unverified]
    [Checksum Status: Unverified]
   Urgent pointer: 0
    [SEQ/ACK analysis]
    [Timestamps]
   TCP payload (480 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/83.0.4103.97 Safari/
537.36 Edg/83.0.478.45\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\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: 3257]
    [Next request in frame: 3295]
No.
       Time
                      Source
                                             Destination
                                                                   Protocol Length Info
  3257 12.159814
                      128.119.245.12
                                            192.168.88.236
                                                                          1126 HTTP/1.1 200 OK (text/html)
                                                                  HTTP
Frame 3257: 1126 bytes on wire (9008 bits), 1126 bytes captured (9008 bits) on interface \Device\NPF_{2E82360E-7527-4C7F-8D52-
B6EC2879C24D}, id 0
Ethernet II, Src: Routerbo_45:e9:ba (74:4d:28:45:e9:ba), Dst: CloudNet_21:54:15 (0c:96:e6:21:54:15)
Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.88.236
Transmission Control Protocol, Src Port: 80, Dst Port: 53912, Seq: 1, Ack: 481, Len: 1072
   Source Port: 80
   Destination Port: 53912
    [Stream index: 26]
    [TCP Segment Len: 1072]
   Sequence number: 1 (relative sequence number)
    Sequence number (raw): 891334759
    [Next sequence number: 1073
                                   (relative sequence number)]
   Acknowledgment number: 481
                                  (relative ack number)
   Acknowledgment number (raw): 4087412372
   0101 .... = Header Length: 20 bytes (5)
   Flags: 0x018 (PSH, ACK)
   Window size value: 237
    [Calculated window size: 30336]
    [Window size scaling factor: 128]
   Checksum: 0x9dfd [unverified]
    [Checksum Status: Unverified]
   Urgent pointer: 0
    [SEQ/ACK analysis]
    [Timestamps]
    TCP payload (1072 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: Sat, 13 Jun 2020 13:55:43 GMT\r\n
   Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/7.4.6 mod_perl/2.0.11 Perl/v5.16.3\r\n
   Last-Modified: Sat, 13 Jun 2020 05:59:03 GMT\r\n
   ETag: "2ca-5a7f0e4061d09"\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 1/3]
    [Time since request: 0.126174000 seconds]
    [Request in frame: 2955]
    [Next request in frame: 3295]
    [Next response in frame: 3503]
    [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
   3295 12.199508
                      192.168.88.236
                                             128.119.245.12
                                                                   HTTP
                                                                            466
                                                                                   GET /pearson.png HTTP/1.1
Frame 3295: 466 bytes on wire (3728 bits), 466 bytes captured (3728 bits) on interface \Device\NPF_{2E82360E-7527-4C7F-8D52-
B6EC2879C24D}, id 0
Ethernet II, Src: CloudNet_21:54:15 (0c:96:e6:21:54:15), Dst: Routerbo_45:e9:ba (74:4d:28:45:e9:ba)
Internet Protocol Version 4, Src: 192.168.88.236, Dst: 128.119.245.12
Transmission Control Protocol, Src Port: 53912, Dst Port: 80, Seq: 481, Ack: 1073, Len: 412
   Source Port: 53912
   Destination Port: 80
   [Stream index: 26]
    [TCP Segment Len: 412]
   Sequence number: 481
                            (relative sequence number)
   Sequence number (raw): 4087412372
    [Next sequence number: 893
                                  (relative sequence number)]
   Acknowledgment number: 1073
                                   (relative ack number)
   Acknowledgment number (raw): 891335831
   0101 .... = Header Length: 20 bytes (5)
   Flags: 0x018 (PSH, ACK)
   Window size value: 509
    [Calculated window size: 130304]
    [Window size scaling factor: 256]
   Checksum: 0x07e0 [unverified]
    [Checksum Status: Unverified]
   Urgent pointer: 0
    [SEQ/ACK analysis]
    [Timestamps]
   TCP payload (412 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/83.0.4103.97 Safari/
537.36 Edg/83.0.478.45\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\r\n
    \r\n
    [Full request URI: http://gaia.cs.umass.edu/pearson.png]
    [HTTP request 2/3]
    [Prev request in frame: 2955]
    [Response in frame: 3503]
    [Next request in frame: 3629]
       Time
                      Source
                                             Destination
                                                                   Protocol Length Info
                                                                                  HTTP/1.1 200 OK (PNG)
   3503 12.324910
                      128.119.245.12
                                             192.168.88.236
                                                                   HTTP
                                                                            744
```

```
Frame 3503: 744 bytes on wire (5952 bits), 744 bytes captured (5952 bits) on interface \Device\NPF_{2E82360E-7527-4C7F-8D52-
B6EC2879C24D}, id 0
Ethernet II, Src: Routerbo_45:e9:ba (74:4d:28:45:e9:ba), Dst: CloudNet_21:54:15 (0c:96:e6:21:54:15)
Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.88.236
Transmission Control Protocol, Src Port: 80, Dst Port: 53912, Seq: 3993, Ack: 893, Len: 690
   Source Port: 80
   Destination Port: 53912
   [Stream index: 26]
    [TCP Segment Len: 690]
   Sequence number: 3993
                             (relative sequence number)
   Sequence number (raw): 891338751
    [Next sequence number: 4683
                                   (relative sequence number)]
   Acknowledgment number: 893
                                  (relative ack number)
   Acknowledgment number (raw): 4087412784
   0101 .... = Header Length: 20 bytes (5)
   Flags: 0x018 (PSH, ACK)
   Window size value: 245
    [Calculated window size: 31360]
    [Window size scaling factor: 128]
   Checksum: 0x06ea [unverified]
    [Checksum Status: Unverified]
   Urgent pointer: 0
    [SEQ/ACK analysis]
    [Timestamps]
   TCP payload (690 bytes)
   TCP segment data (690 bytes)
[3 Reassembled TCP Segments (3610 bytes): #3500(1460), #3501(1460), #3503(690)]
    [Frame: 3500, payload: 0-1459 (1460 bytes)]
    [Frame: 3501, payload: 1460-2919 (1460 bytes)]
    [Frame: 3503, payload: 2920-3609 (690 bytes)]
    [Segment count: 3]
    [Reassembled TCP length: 3610]
    [Reassembled TCP Data: 485454502f312e3120323030204f4b0d0a446174653a2053...]
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: Sat, 13 Jun 2020 13:55:43 GMT\r\n
   Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/7.4.6 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 2/3]
    [Time since request: 0.125402000 seconds]
    [Prev request in frame: 2955]
    [Prev response in frame: 3257]
    [Request in frame: 3295]
    [Next request in frame: 3629]
    [Next response in frame: 3630]
    [Request URI: http://gaia.cs.umass.edu/pearson.png]
   File Data: 3267 bytes
Portable Network Graphics
       Time
                       Source
                                             Destination
                                                                   Protocol Length Info
  3538 12.591631
                                            128.119.245.12
                                                                                  GET /~kurose/cover 5th ed.jpg HTTP/1.1
                      192.168.88.236
                                                                   HTTP
                                                                           480
Frame 3538: 480 bytes on wire (3840 bits), 480 bytes captured (3840 bits) on interface \Device\NPF_{2E82360E-7527-4C7F-8D52-
B6EC2879C24D}, id 0
Ethernet II, Src: CloudNet_21:54:15 (0c:96:e6:21:54:15), Dst: Routerbo_45:e9:ba (74:4d:28:45:e9:ba)
Internet Protocol Version 4, Src: 192.168.88.236, Dst: 128.119.245.12
Transmission Control Protocol, Src Port: 53916, Dst Port: 80, Seq: 1, Ack: 1, Len: 426
   Source Port: 53916
   Destination Port: 80
    [Stream index: 30]
    [TCP Segment Len: 426]
   Sequence number: 1
                         (relative sequence number)
   Sequence number (raw): 4246772205
    [Next sequence number: 427
                                 (relative sequence number)]
   Acknowledgment number: 1
                                (relative ack number)
```

```
Acknowledgment number (raw): 538688073
   0101 .... = Header Length: 20 bytes (5)
   Flags: 0x018 (PSH, ACK)
   Window size value: 513
    [Calculated window size: 131328]
    [Window size scaling factor: 256]
   Checksum: 0x4be6 [unverified]
   [Checksum Status: Unverified]
   Urgent pointer: 0
    [SEQ/ACK analysis]
    [Timestamps]
   TCP payload (426 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/83.0.4103.97 Safari/
537.36 Edg/83.0.478.45\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\r\n
    [Full request URI: http://manic.cs.umass.edu/~kurose/cover_5th_ed.jpg]
    [HTTP request 1/1]
   [Response in frame: 3627]
No.
       Time
                      Source
                                             Destination
                                                                   Protocol Length Info
                                                                                 HTTP/1.1 200 OK (JPEG JFIF image)
  3627 13.051668
                      128.119.245.12
                                             192.168.88.236
                                                                   HTTP
                                                                            631
Frame 3627: 631 bytes on wire (5048 bits), 631 bytes captured (5048 bits) on interface \Device\NPF_{2E82360E-7527-4C7F-8D52-
Ethernet II, Src: Routerbo 45:e9:ba (74:4d:28:45:e9:ba), Dst: CloudNet 21:54:15 (0c:96:e6:21:54:15)
Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.88.236
Transmission Control Protocol, Src Port: 80, Dst Port: 53916, Seq: 100741, Ack: 427, Len: 577
   Source Port: 80
   Destination Port: 53916
    [Stream index: 30]
    [TCP Segment Len: 577]
   Sequence number: 100741
                               (relative sequence number)
   Sequence number (raw): 538788813
    [Next sequence number: 101318
                                     (relative sequence number)]
   Acknowledgment number: 427
                                  (relative ack number)
   Acknowledgment number (raw): 4246772631
   0101 .... = Header Length: 20 bytes (5)
   Flags: 0x018 (PSH, ACK)
   Window size value: 237
    [Calculated window size: 30336]
    [Window size scaling factor: 128]
   Checksum: 0x86d8 [unverified]
    [Checksum Status: Unverified]
   Urgent pointer: 0
    [SEQ/ACK analysis]
    [Timestamps]
   TCP payload (577 bytes)
   TCP segment data (577 bytes)
[70 Reassembled TCP Segments (101317 bytes): #3542(1460), #3543(1460), #3545(1460), #3546(1460), #3547(1460), #3547(1460),
#3550(1460), #3552(1460), #3553(1460), #3554(1460), #3556(1460), #3557(1460), #3559(1460), #3560(1460), #3560(1460), ]
    [Frame: 3542, payload: 0-1459 (1460 bytes)]
    [Frame: 3543, payload: 1460-2919 (1460 bytes)]
    [Frame: 3545, payload: 2920-4379 (1460 bytes)]
    [Frame: 3546, payload: 4380-5839 (1460 bytes)]
    [Frame: 3547, payload: 5840-7299 (1460 bytes)]
    [Frame: 3549, payload: 7300-8759 (1460 bytes)]
    [Frame: 3550, payload: 8760-10219 (1460 bytes)]
    [Frame: 3552, payload: 10220-11679 (1460 bytes)]
    [Frame: 3553, payload: 11680-13139 (1460 bytes)]
    [Frame: 3554, payload: 13140-14599 (1460 bytes)]
    [Frame: 3556, payload: 14600-16059 (1460 bytes)]
    [Frame: 3557, payload: 16060-17519 (1460 bytes)]
    [Frame: 3559, payload: 17520-18979 (1460 bytes)]
    [Frame: 3560, payload: 18980-20439 (1460 bytes)]
    [Frame: 3562, payload: 20440-21899 (1460 bytes)]
```

[Frame: 3563, payload: 21900-23359 (1460 bytes)]

```
[Frame: 3564, payload: 23360-24819 (1460 bytes)]
    [Frame: 3566, payload: 24820-26279 (1460 bytes)]
    [Frame: 3567, payload: 26280-27739 (1460 bytes)]
    [Frame: 3568, payload: 27740-29199 (1460 bytes)]
    [Frame: 3569, payload: 29200-30659 (1460 bytes)]
    [Frame: 3570, payload: 30660-32119 (1460 bytes)]
    [Frame: 3571, payload: 32120-33579 (1460 bytes)]
    [Frame: 3572, payload: 33580-35039 (1460 bytes)]
    [Frame: 3573, payload: 35040-36499 (1460 bytes)]
    [Frame: 3574, payload: 36500-37959 (1460 bytes)]
    [Frame: 3575, payload: 37960-39419 (1460 bytes)]
    [Frame: 3576, payload: 39420-40879 (1460 bytes)]
    [Frame: 3578, payload: 40880-42339 (1460 bytes)]
    [Frame: 3579, payload: 42340-43799 (1460 bytes)]
    [Frame: 3581, payload: 43800-45259 (1460 bytes)]
    [Frame: 3582, payload: 45260-46719 (1460 bytes)]
    [Frame: 3584, payload: 46720-48179 (1460 bytes)]
    [Frame: 3585, payload: 48180-49639 (1460 bytes)]
    [Frame: 3586, payload: 49640-51099 (1460 bytes)]
    [Frame: 3588, payload: 51100-52559 (1460 bytes)]
    [Frame: 3589, payload: 52560-54019 (1460 bytes)]
    [Frame: 3590, payload: 54020-55479 (1460 bytes)]
    [Frame: 3591, payload: 55480-56939 (1460 bytes)]
    [Frame: 3592, payload: 56940-58399 (1460 bytes)]
    [Frame: 3593, payload: 58400-59859 (1460 bytes)]
    [Frame: 3594, payload: 59860-61319 (1460 bytes)]
    [Frame: 3595, payload: 61320-62779 (1460 bytes)]
    [Frame: 3596, payload: 62780-64239 (1460 bytes)]
    [Frame: 3598, payload: 64240-65699 (1460 bytes)]
    [Frame: 3599, payload: 65700-67159 (1460 bytes)]
    [Frame: 3601, payload: 67160-68619 (1460 bytes)]
    [Frame: 3602, payload: 68620-70079 (1460 bytes)]
    [Frame: 3603, payload: 70080-71539 (1460 bytes)]
    [Frame: 3604, payload: 71540-72999 (1460 bytes)]
    [Frame: 3605, payload: 73000-74459 (1460 bytes)]
    [Frame: 3606, payload: 74460-75919 (1460 bytes)]
    [Frame: 3607, payload: 75920-77379 (1460 bytes)]
    [Frame: 3608, payload: 77380-78839 (1460 bytes)]
    [Frame: 3609, payload: 78840-80299 (1460 bytes)]
    [Frame: 3610, payload: 80300-81759 (1460 bytes)]
    [Frame: 3611, payload: 81760-83219 (1460 bytes)]
    [Frame: 3612, payload: 83220-84679 (1460 bytes)]
    [Frame: 3614, payload: 84680-86139 (1460 bytes)]
    [Frame: 3615, payload: 86140-87599 (1460 bytes)]
    [Frame: 3616, payload: 87600-89059 (1460 bytes)]
    [Frame: 3617, payload: 89060-90519 (1460 bytes)]
    [Frame: 3618, payload: 90520-91979 (1460 bytes)]
    [Frame: 3619, payload: 91980-93439 (1460 bytes)]
    [Frame: 3621, payload: 93440-94899 (1460 bytes)]
    [Frame: 3622, payload: 94900-96359 (1460 bytes)]
    [Frame: 3624, payload: 96360-97819 (1460 bytes)]
    [Frame: 3625, payload: 97820-99279 (1460 bytes)]
    [Frame: 3626, payload: 99280-100739 (1460 bytes)]
    [Frame: 3627, payload: 100740-101316 (577 bytes)]
    [Segment count: 70]
    [Reassembled TCP length: 101317]
    [Reassembled TCP Data: 485454502f312e3120323030204f4b0d0a446174653a2053...]
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: Sat, 13 Jun 2020 13:55:44 GMT\r\n
    Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/7.4.6 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: 0.460037000 seconds]
[Request in frame: 3538]
[Request URI: http://manic.cs.umass.edu/~kurose/cover_5th_ed.jpg]

File Data: 100968 bytes JPEG File Interchange Format