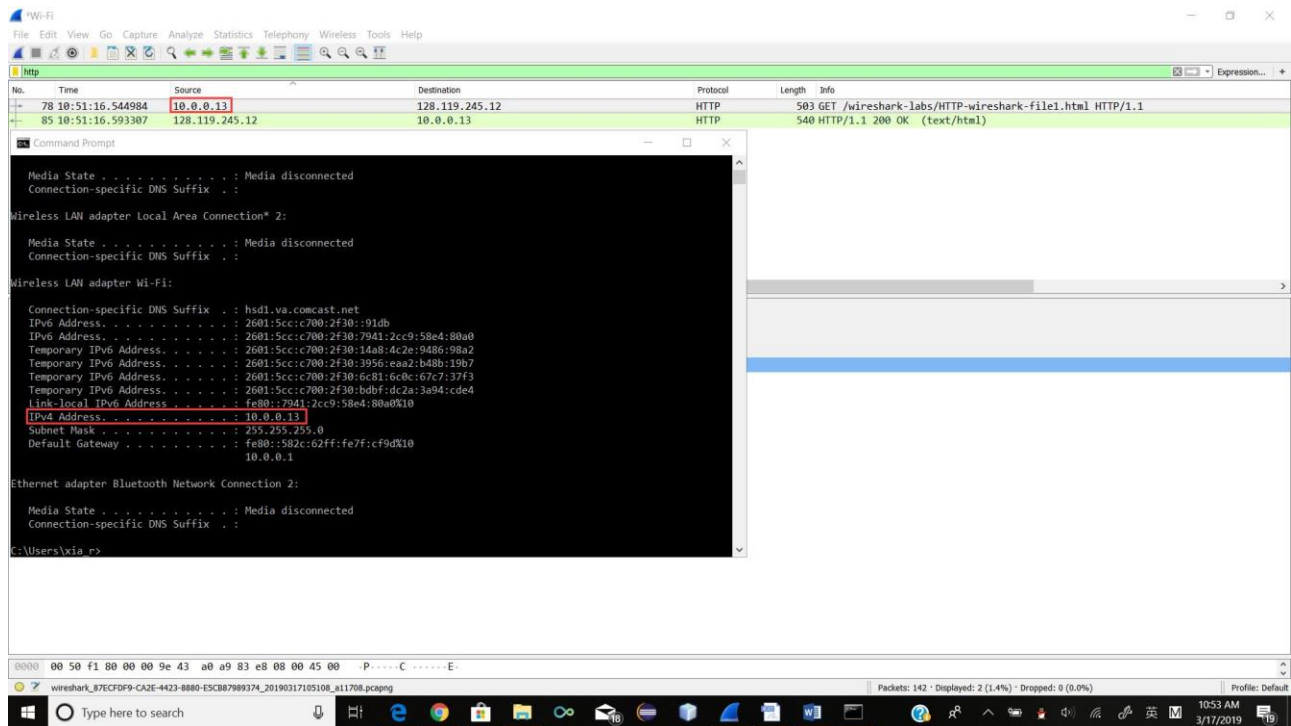


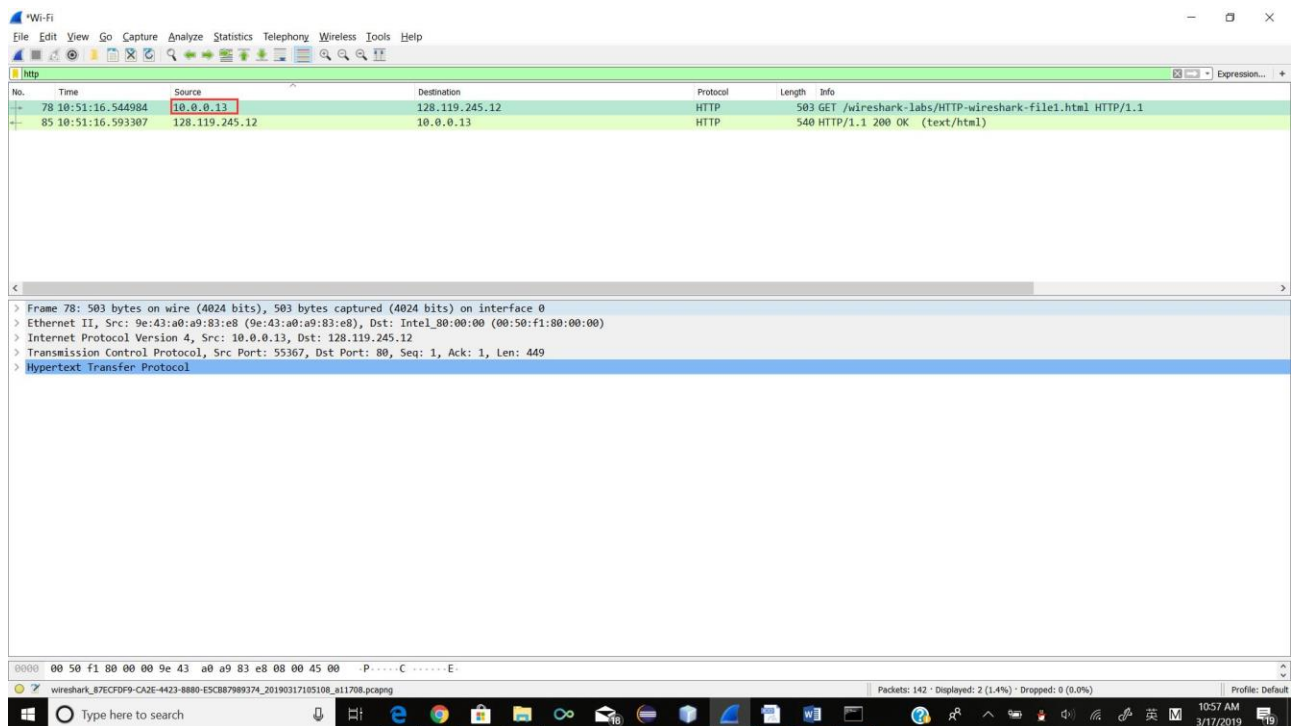
## Lab 04

Ran Xia



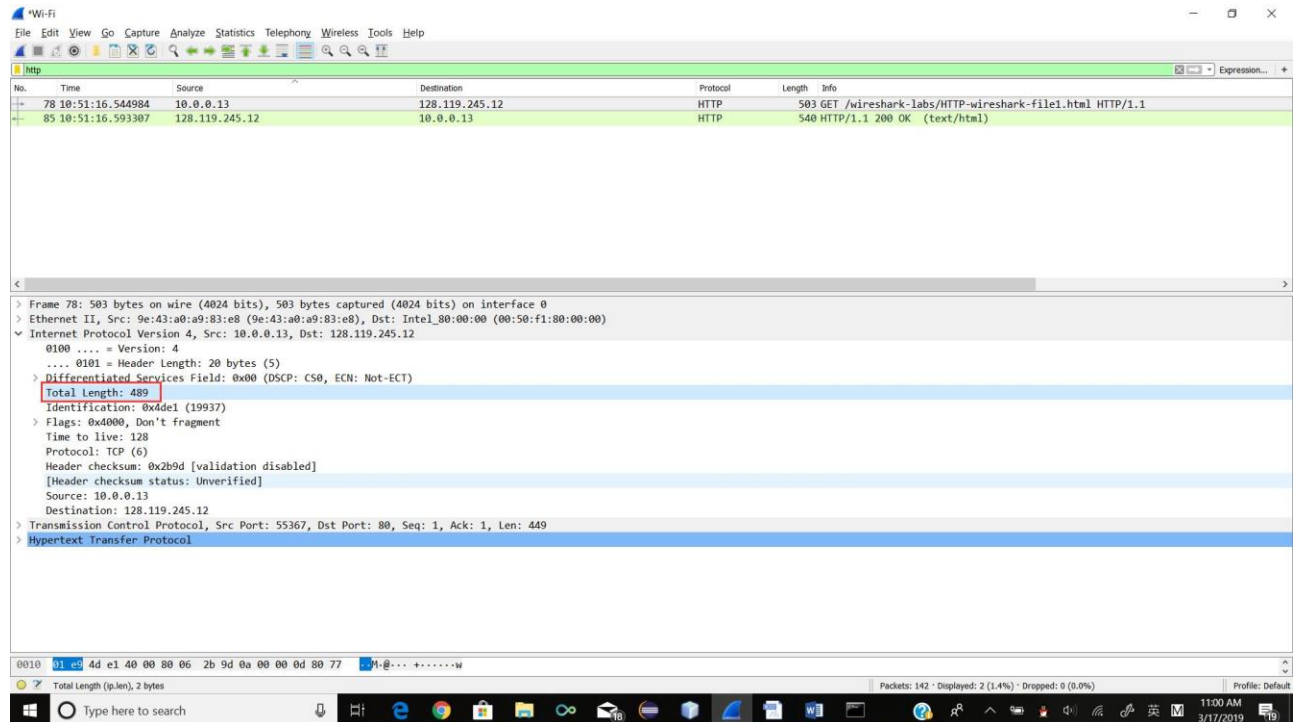
My IP address is 10. 0. 0. 13

### 1. What is the IP address of your computer? – Wireshark screenshot not, Terminal



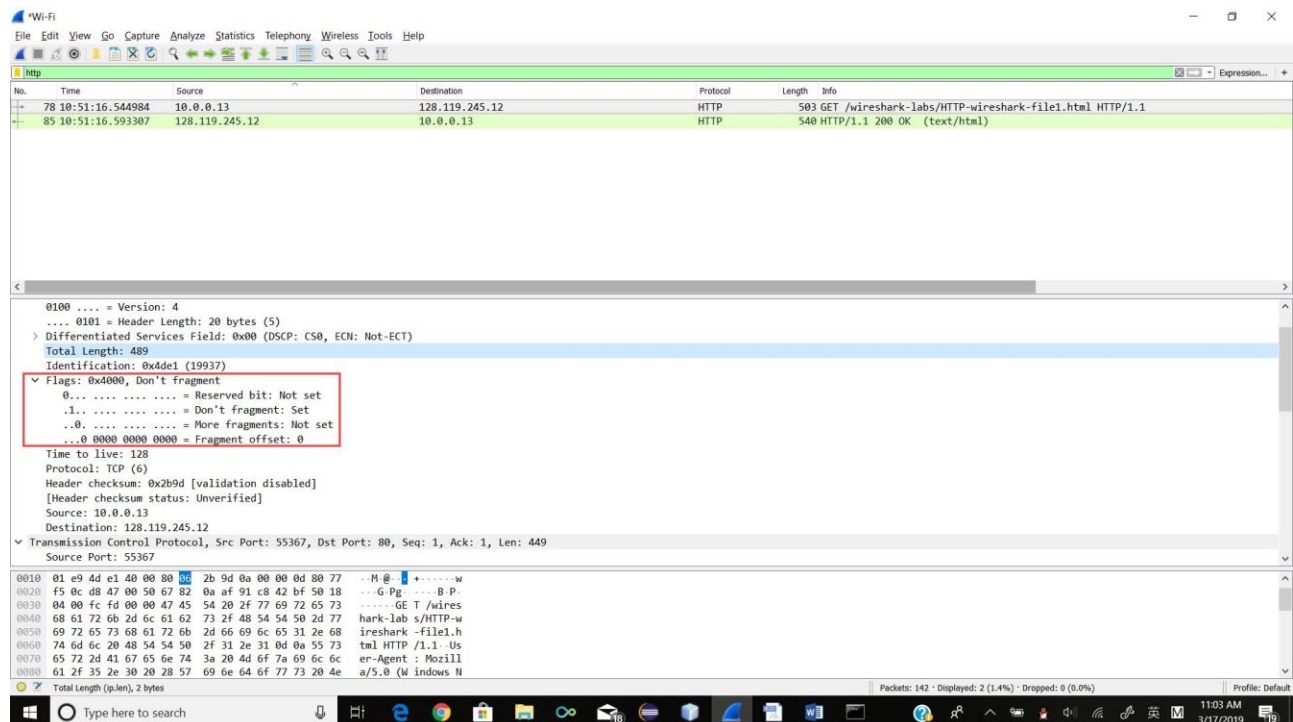
IP address is 10. 0. 0. 13(source IP in GET message)

2. What is the total length of the datagram?



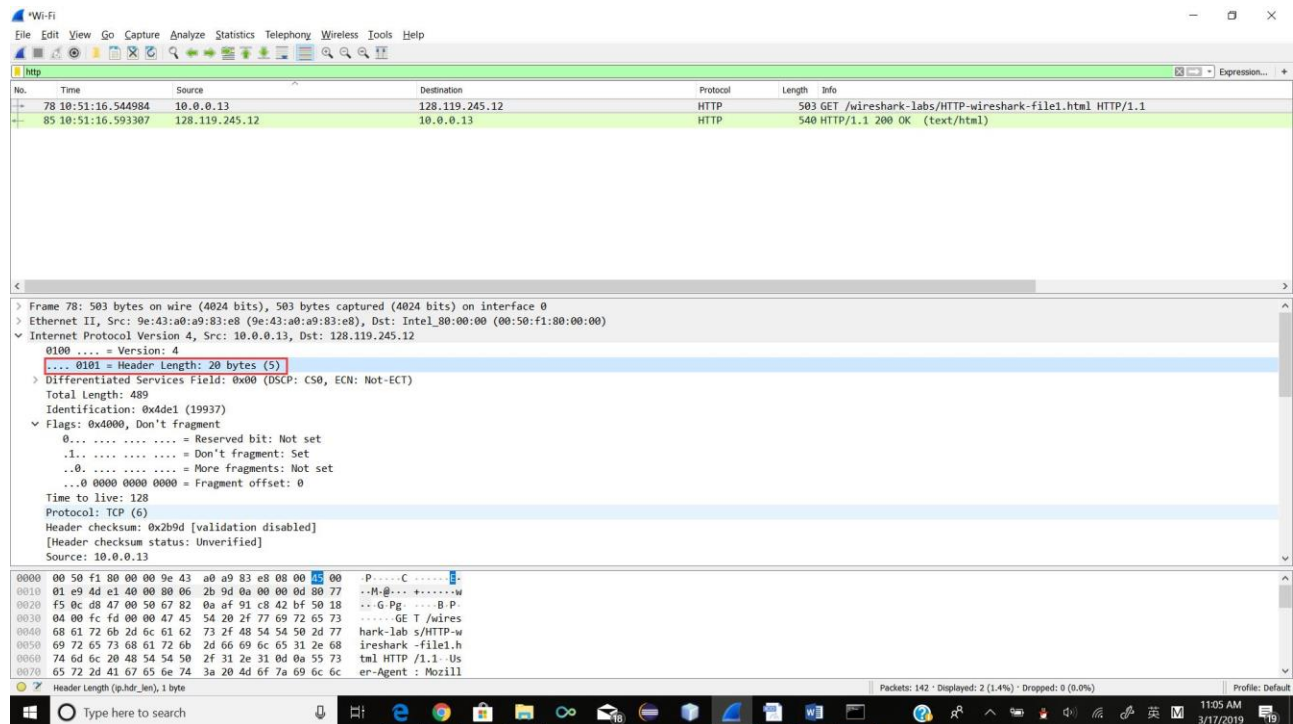
Total length is 489 bytes.

3. Has this IP datagram been fragmented?



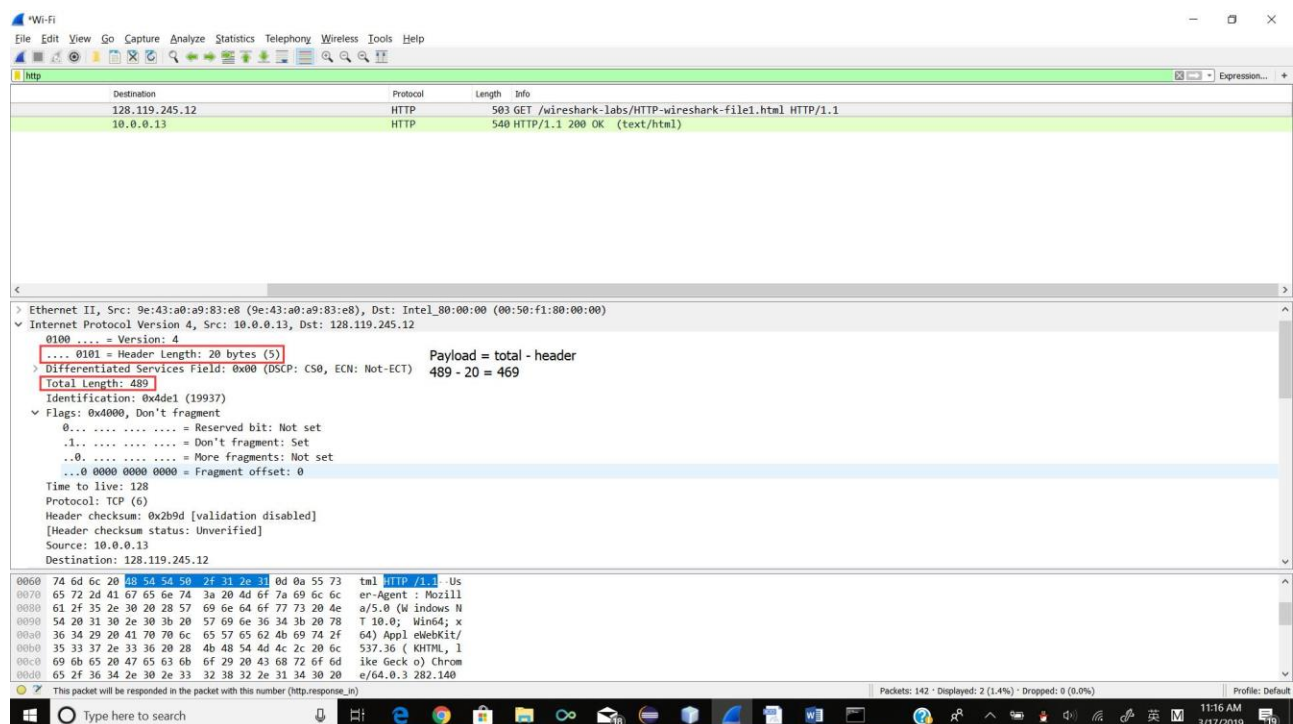
No, flag shows don't fragment.

#### 4. How many bytes are in the IP header?



Header Length is 20 bytes.

#### 5. How many bytes are in the payload of the IP datagram? Explain how you determined the number of payload bytes.



Payload of the IP datagram is  $489 - 20 = 469$  bytes. (HTTP message length =  $469 - 20 = 449$  bytes)

No.	Time	Source	Destination	Protocol	Length	Info
78	10:51:16.544984	10.0.0.13	128.119.245.12	HTTP	503	GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1

Frame 78: 503 bytes on wire (4024 bits), 503 bytes captured (4024 bits) on interface 0  
Interface id: 0 (\Device\NPF\_{87ECDFD9-CA2E-4423-8880-E5CB87989374})  
Interface name: \Device\NPF\_{87ECDFD9-CA2E-4423-8880-E5CB87989374}  
Encapsulation type: Ethernet (1)  
Arrival Time: Mar 17, 2019 10:51:16.544984000 Eastern Daylight Time  
[Time shift for this packet: 0.000000000 seconds]  
Epoch Time: 1552834276.544984000 seconds  
[Time delta from previous captured frame: 0.008776000 seconds]  
[Time delta from previous displayed frame: 0.000000000 seconds]  
[Time since reference or first frame: 8.493986000 seconds]  
Frame Number: 78  
Frame Length: 503 bytes (4024 bits)  
Capture Length: 503 bytes (4024 bits)  
[Frame is marked: False]  
[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: 9e:43:a0:a9:83:e8 (9e:43:a0:a9:83:e8), Dst: Intel\_80:00:00 (00:50:f1:80:00:00)  
Destination: Intel\_80:00:00 (00:50:f1:80:00:00)  
Address: Intel\_80:00:00 (00:50:f1:80:00:00)  
.... 0. .... = LG bit: Globally unique address (factory default)  
.... 0. .... = IG bit: Individual address (unicast)  
Source: 9e:43:a0:a9:83:e8 (9e:43:a0:a9:83:e8)  
Address: 9e:43:a0:a9:83:e8 (9e:43:a0:a9:83:e8)  
.... 1. .... = LG bit: Locally administered address (this is NOT the factory default)  
.... 0. .... = IG bit: Individual address (unicast)  
Type: IPv4 (0x0800)

Internet Protocol Version 4, Src: 10.0.0.13, 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: 489  
Identification: 0x4de1 (19937)  
Flags: 0x4000, Don't fragment  
0... .... = Reserved bit: Not set  
.1.. .... = Don't fragment: Set  
..0. .... = More fragments: Not set  
...0 0000 0000 0000 = Fragment offset: 0  
Time to live: 128  
Protocol: TCP (6)  
Header checksum: 0x2b9d [validation disabled]  
[Header checksum status: Unverified]  
Source: 10.0.0.13  
Destination: 128.119.245.12

Transmission Control Protocol, Src Port: 55367, Dst Port: 80, Seq: 1, Ack: 1, Len: 449  
Source Port: 55367  
Destination Port: 80  
[Stream index: 12]  
[TCP Segment Len: 449]  
Sequence number: 1 (relative sequence number)  
[Next sequence number: 450 (relative sequence number)]  
Acknowledgment number: 1 (relative ack number)  
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: 0xfcfd [unverified]  
[Checksum Status: Unverified]  
Urgent pointer: 0  
[SEQ/ACK analysis]  
[iRTT: 0.032121000 seconds]  
[Bytes in flight: 449]  
[Bytes sent since last PSH flag: 449]  
[Timestamps]  
[Time since first frame in this TCP stream: 0.040897000 seconds]  
[Time since previous frame in this TCP stream: 0.008776000 seconds]  
TCP payload (449 bytes)

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
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/64.0.3282.140 Safari/537.36 Edge/
17.17134\r\n
Accept-Language: zh-Hans-CN,zh-Hans;q=0.8,en-US;q=0.5,en;q=0.3\r\n
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8\r\n
Upgrade-Insecure-Requests: 1\r\n
Accept-Encoding: gzip, deflate\r\n
Host: gaia.cs.umass.edu\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: 85]
No.      Time                Source                Destination           Protocol Length Info
   85 10:51:16.593307    128.119.245.12        10.0.0.13             HTTP      540    HTTP/1.1 200 OK (text/html)
Frame 85: 540 bytes on wire (4320 bits), 540 bytes captured (4320 bits) on interface 0
  Interface id: 0 (\Device\NPF_{87ECDF9-CA2E-4423-8880-E5CB87989374})
    Interface name: \Device\NPF_{87ECDF9-CA2E-4423-8880-E5CB87989374}
  Encapsulation type: Ethernet (1)
  Arrival Time: Mar 17, 2019 10:51:16.593307000 Eastern Daylight Time
  [Time shift for this packet: 0.000000000 seconds]
  Epoch Time: 1552834276.593307000 seconds
  [Time delta from previous captured frame: 0.015788000 seconds]
  [Time delta from previous displayed frame: 0.048323000 seconds]
  [Time since reference or first frame: 8.542309000 seconds]
  Frame Number: 85
  Frame Length: 540 bytes (4320 bits)
  Capture Length: 540 bytes (4320 bits)
  [Frame is marked: False]
  [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: Intel_80:00:00 (00:50:f1:80:00:00), Dst: 9e:43:a0:a9:83:e8 (9e:43:a0:a9:83:e8)
  Destination: 9e:43:a0:a9:83:e8 (9e:43:a0:a9:83:e8)
    Address: 9e:43:a0:a9:83:e8 (9e:43:a0:a9:83:e8)
      ....1. .... = LG bit: Locally administered address (this is NOT the factory default)
      ....0. .... = IG bit: Individual address (unicast)
  Source: Intel_80:00:00 (00:50:f1:80:00:00)
    Address: Intel_80:00:00 (00:50:f1:80:00:00)
      ....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: 10.0.0.13
  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: 526
  Identification: 0xd465 (54373)
  Flags: 0x4000, Don't fragment
    0... .... = Reserved bit: Not set
    .1.. .... = Don't fragment: Set
    ..0. .... = More fragments: Not set
    ...0 0000 0000 0000 = Fragment offset: 0
  Time to live: 48
  Protocol: TCP (6)
  Header checksum: 0xf4f3 [validation disabled]
  [Header checksum status: Unverified]
  Source: 128.119.245.12
  Destination: 10.0.0.13
Transmission Control Protocol, Src Port: 80, Dst Port: 55367, Seq: 1, Ack: 450, Len: 486
  Source Port: 80
  Destination Port: 55367
  [Stream index: 12]
  [TCP Segment Len: 486]
  Sequence number: 1 (relative sequence number)
  [Next sequence number: 487 (relative sequence number)]
  Acknowledgment number: 450 (relative ack number)
  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: 0x6fc3 [unverified]
[Checksum Status: Unverified]
Urgent pointer: 0
[SEQ/ACK analysis]
  [iRTT: 0.032121000 seconds]
  [Bytes in flight: 486]
  [Bytes sent since last PSH flag: 486]
[Timestamps]
  [Time since first frame in this TCP stream: 0.089220000 seconds]
  [Time since previous frame in this TCP stream: 0.015788000 seconds]
TCP payload (486 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: Sun, 17 Mar 2019 14:51:14 GMT\r\n
Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/5.4.16 mod_perl/2.0.10 Perl/v5.16.3\r\n
Last-Modified: Sun, 17 Mar 2019 05:59:02 GMT\r\n
ETag: "80-58443f80117c8"\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: 0.048323000 seconds]
[Request in frame: 78]
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
```