

Ran Xia Lab 07

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Command Prompt

Wireless LAN adapter Local Area Connection* 1:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 2:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

Connection-specific DNS Suffix  . : hsd1.va.comcast.net
IPv6 Address. . . . . : 2601:5cc:c700:2f30::796b
IPv6 Address. . . . . : 2601:5cc:c700:2f30:7941:2cc9:58e4:80a0
Temporary IPv6 Address. . . . . : 2601:5cc:c700:2f30:455f:791b:b6d:2480
Temporary IPv6 Address. . . . . : 2601:5cc:c700:2f30:ecbf:326e:1bb6:928e
Link-local IPv6 Address . . . . . : fe80::7941:2cc9:58e4:80a0%10
IPv4 Address. . . . . : 10.0.0.13
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : fe80::250:f1ff:fe80:0%10
                          10.0.0.1

Ethernet adapter Bluetooth Network Connection 2:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix  . :

C:\Users\xia>

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My IP is 10.0.0.13

1. What are the SSIDs of the two access points that are issuing most of the beacon frames in this trace?

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Wireshark_802_11.pcap
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

Apply a display filter ... <<Ctrl>>

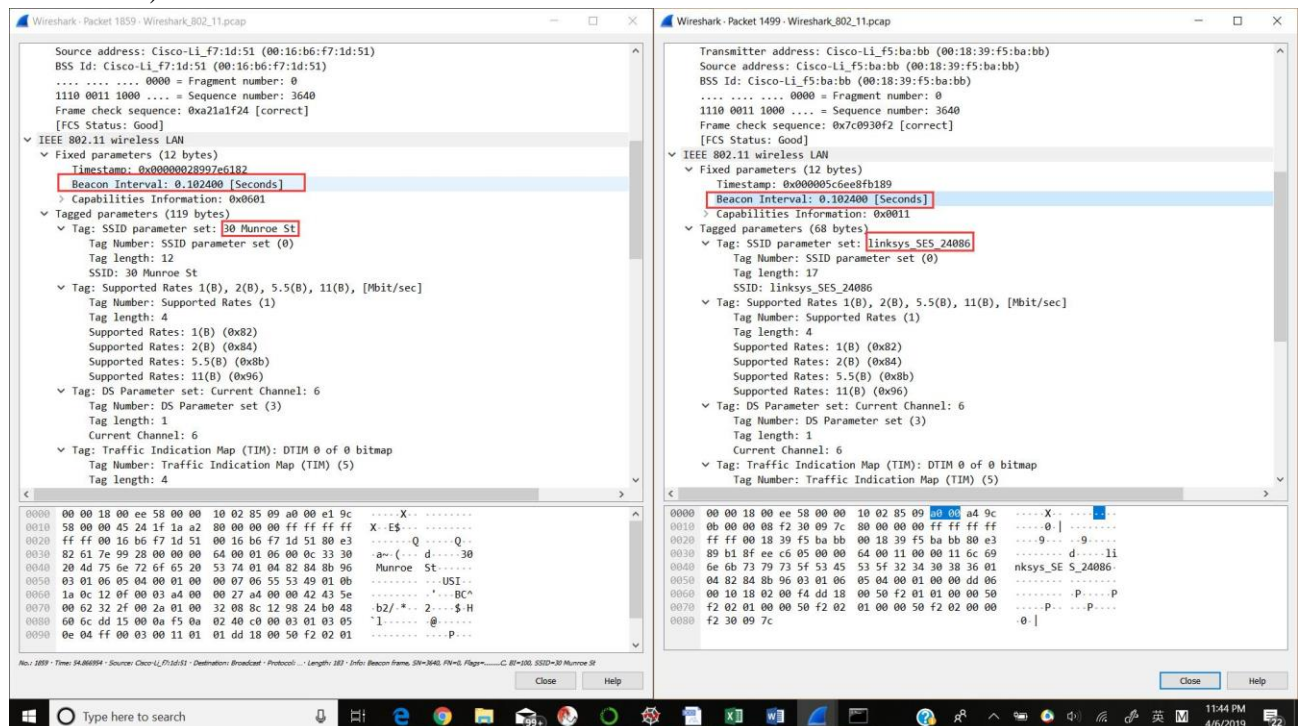
No. Time Source Destination Protocol Length Info
1818 53.740602 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3629, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1841 53.842947 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3630, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1842 53.945330 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3631, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1843 54.047713 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3632, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1844 54.150104 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3633, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1845 54.252616 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3634, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1846 54.354955 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3635, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1847 54.457361 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3636, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1848 54.559727 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3637, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1849 54.662085 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3638, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1850 54.764476 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3639, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1859 54.866954 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3640, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1499 42.532596 Cisco-Li-f5:ba:bb Broadcast 802.11 132 Beacon frame, SN=3640, FN=0, Flags=.....C, BI=100, SSID=linksys_SES_24086
1868 54.971071 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3641, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1873 55.072697 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3642, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1874 55.174099 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3643, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1513 42.839707 Cisco-Li-f5:ba:bb Broadcast 802.11 132 Beacon frame, SN=3643, FN=0, Flags=.....C, BI=100, SSID=linksys_SES_24086
1875 55.276451 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3644, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1876 55.378829 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3645, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1877 55.481339 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3646, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1878 55.583740 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3647, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1879 55.686099 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3648, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1880 55.788467 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3649, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1892 55.890854 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3650, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1893 55.993202 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3651, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1527 43.658960 Cisco-Li-f5:ba:bb Broadcast 802.11 132 Beacon frame, SN=3651, FN=0, Flags=.....C, BI=100, SSID=linksys_SES_24086
1894 56.095703 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3652, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1896 56.198107 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3653, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1897 56.300489 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3654, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1898 56.402853 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3655, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1899 56.505216 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3656, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1900 56.607609 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3657, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1901 56.709969 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3658, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1902 56.812464 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3659, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1908 56.914859 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3660, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1909 57.017209 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3661, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1910 57.119592 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3662, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1911 57.221975 Cisco-Li-f7:1d:51 Broadcast 802.11 183 Beacon frame, SN=3663, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St

0010 11 00 00 0b 31 79 9c 10 00 00 00 ff ff ff ff ...1y...
MAC Frame control (wlan.fc), 2 bytes
Packets: 2364 / Displayed: 2364 (100.0%)
Profile: Default

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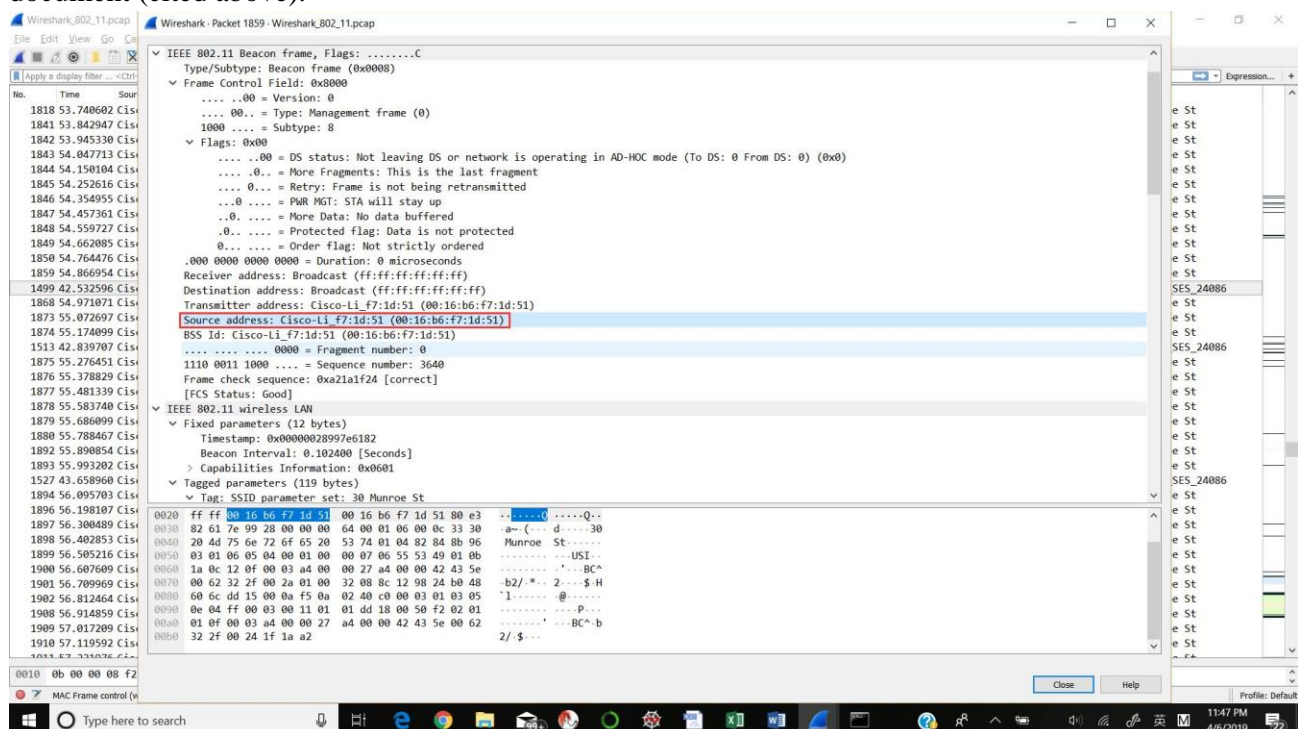
Most beacon frames are issued by 30 Munroe St, second place is linksys_SES_24086.

2. What are the intervals of time between the transmissions of the beacon frames the *linksys_ses_24086* access point? From the *30 Munroe St.* access point? (Hint: this interval of time is contained in the beacon frame itself).



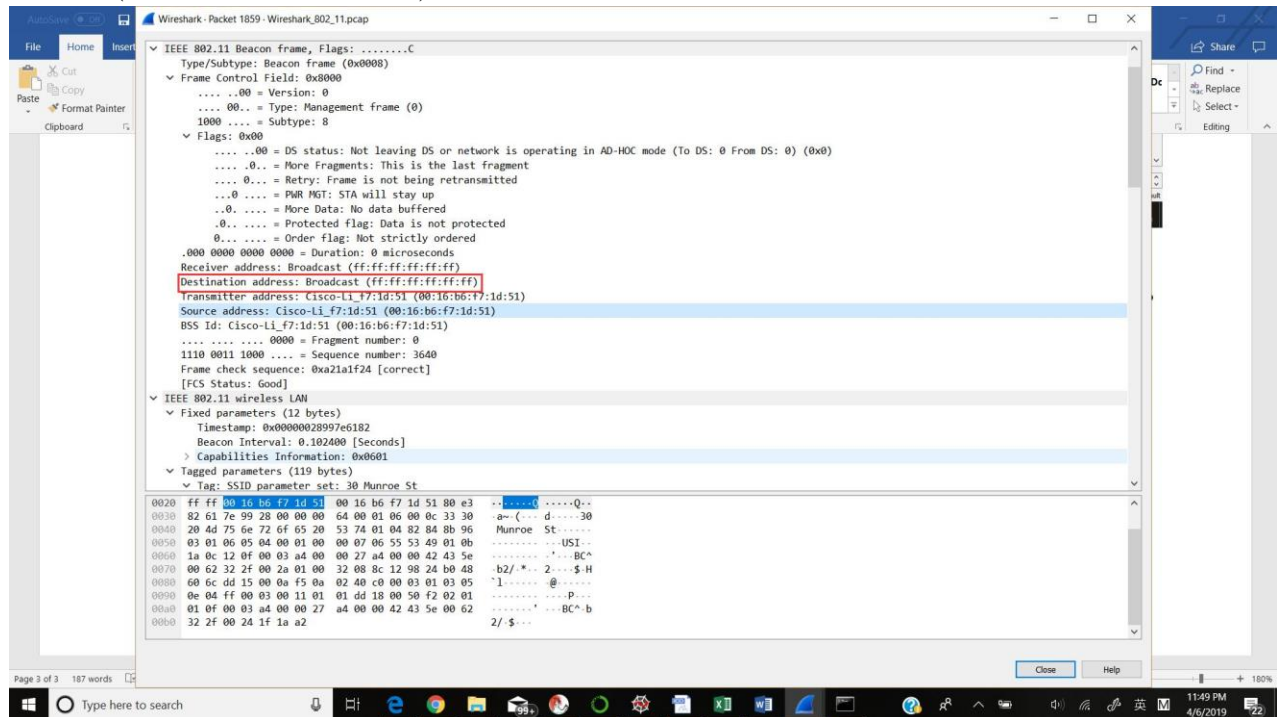
Both have Beacon Interval 0.1024s.

3. What (in hexadecimal notation) is the source MAC address on the beacon frame from *30 Munroe St*? Recall from Figure 7.13 in the text that the source, destination, and BSS are three addresses used in an 802.11 frame. For a detailed discussion of the 802.11 frame structure, see section 7 in the IEEE 802.11 standards document (cited above).



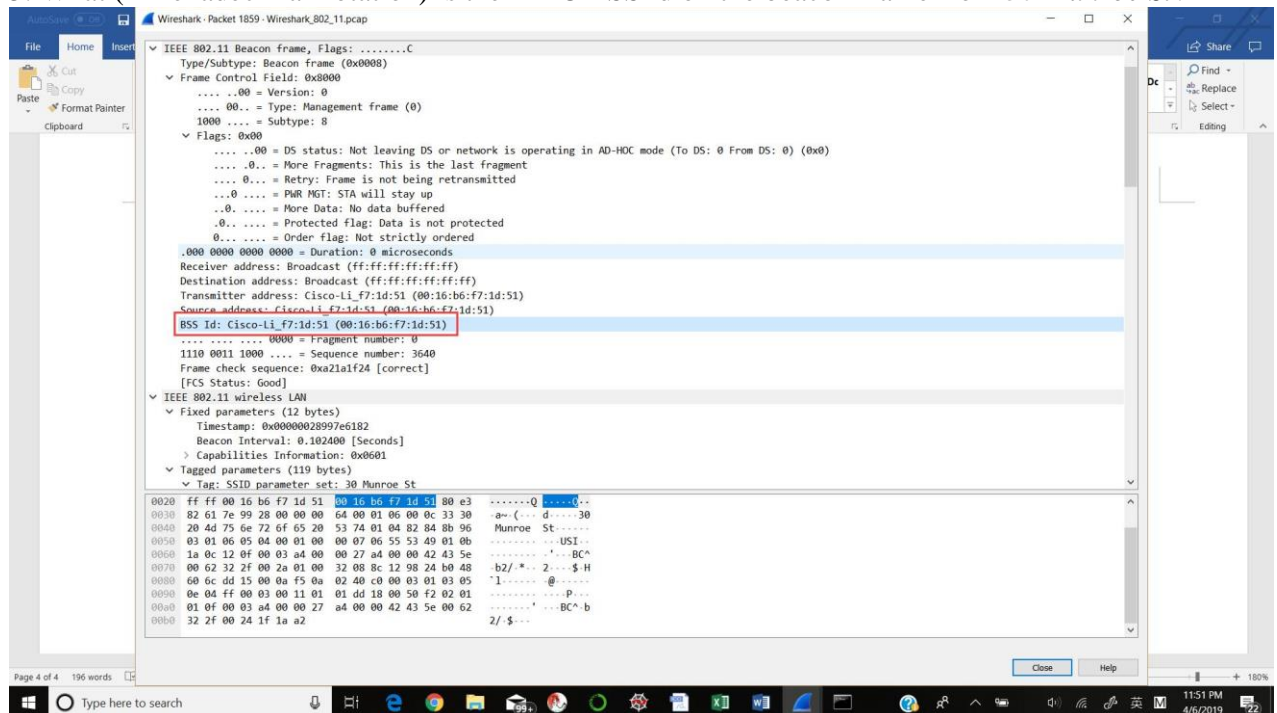
Source MAC is 00: 16: b6: f7: 1d: 51.

4. What (in hexadecimal notation) is the destination MAC address on the beacon frame from 30 Munroe St??



Destination MAC is ff: ff: ff: ff: ff: ff.

5. What (in hexadecimal notation) is the MAC BSS id on the beacon frame from 30 Munroe St?



BSS Id is 00: 16: b6: f7: 1d: 51.

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No.      Time                Source                Destination          Protocol Length Info
 86 22:05:53.511250        128.119.245.12        10.0.0.13           HTTP      535      HTTP/1.1 200 OK (text/html)
Frame 86: 535 bytes on wire (4280 bits), 535 bytes captured (4280 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 29, 2019 22:05:53.511250000 Eastern Daylight Time
[Time shift for this packet: 0.000000000 seconds]
Epoch Time: 1553911553.511250000 seconds
[Time delta from previous captured frame: 0.000392000 seconds]
[Time delta from previous displayed frame: 0.039201000 seconds]
[Time since reference or first frame: 3.389371000 seconds]
Frame Number: 86
Frame Length: 535 bytes (4280 bits)
Capture Length: 535 bytes (4280 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: 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: 521
Identification: 0xfb09 (64265)
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: 47
Protocol: TCP (6)
Header checksum: 0xcf54 [validation disabled]
[Header checksum status: Unverified]
Source: 128.119.245.12
Destination: 10.0.0.13
Transmission Control Protocol, Src Port: 80, Dst Port: 49187, Seq: 4381, Ack: 483, Len: 481
Source Port: 80
Destination Port: 49187
[Stream index: 17]
[TCP Segment Len: 481]
Sequence number: 4381 (relative sequence number)
[Next sequence number: 4862 (relative sequence number)]
Acknowledgment number: 483 (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: 0xa21b [unverified]
[Checksum Status: Unverified]
Urgent pointer: 0
[SEQ/ACK analysis]
[iRTT: 0.032697000 seconds]
[Bytes in flight: 1941]
[Bytes sent since last PSH flag: 4861]
[Timestamps]
[Time since first frame in this TCP stream: 0.072299000 seconds]
[Time since previous frame in this TCP stream: 0.000392000 seconds]
TCP payload (481 bytes)
TCP segment data (481 bytes)
[4 Reassembled TCP Segments (481 bytes): #82(1460), #83(1460), #85(1460), #86(481)]
[Frame: 82, payload: 0-1459 (1460 bytes)]

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[Frame: 83, payload: 1460-2919 (1460 bytes)]
[Frame: 85, payload: 2920-4379 (1460 bytes)]
[Frame: 86, payload: 4380-4860 (481 bytes)]
[Segment count: 4]
[Reassembled TCP length: 4861]
[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]
  [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: Sat, 30 Mar 2019 02:05:51 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: Fri, 29 Mar 2019 05:59:02 GMT\r\n
ETag: "1194-585355e1a4cef"\r\n
Accept-Ranges: bytes\r\n
Content-Length: 4500\r\n
  [Content length: 4500]
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: 0.039201000 seconds]
[Request in frame: 77]
[Next request in frame: 88]
[Next response in frame: 89]
File Data: 4500 bytes
Line-based text data: text/html (98 lines)
<html><head> \n
<title>Historical Documents:THE BILL OF RIGHTS</title></head>\n
\n
\n
<body bgcolor="#ffffff" link="#330000" vlink="#666633">\n
<p><br>\n
</p>\n
<p></p><center><b>THE BILL OF RIGHTS</b><br>\n
  <em>Amendments 1-10 of the Constitution</em>\n
</center>\n
\n
<p></p><p>The Conventions of a number of the States having, at the time of adopting\n
the Constitution, expressed a desire, in order to prevent misconstruction\n
or abuse of its powers, that further declaratory and restrictive clauses\n
should be added, and as extending the ground of public confidence in the\n
Government will best insure the beneficent ends of its institution; </p><p> Resolved, by the Senate and House of Representatives of the
United\n
States of America, in Congress assembled, two-thirds of both Houses concurring,\n
that the following articles be proposed to the Legislatures of the several\n
States, as amendments to the Constitution of the United States; all or any\n
of which articles, when ratified by three-fourths of the said Legislatures,\n
to be valid to all intents and purposes as part of the said Constitution,\n
namely: </p><p><a name="1"><strong><h3>Amendment I</h3></strong></a>\n
\n
<p></p><p><p>Congress shall make no law respecting an establishment of\n
religion, or prohibiting the free exercise thereof; or\n
abridging the freedom of speech, or of the press; or the\n
right of the people peaceably to assemble, and to petition\n
the government for a redress of grievances.\n
\n
\n
</p><p><a name="2"><strong><h3>Amendment II</h3></strong></a>\n
\n
<p></p><p><p>A well regulated militia, being necessary to the security\n
of a free state, the right of the people to keep and bear\n
arms, shall not be infringed.\n
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</p><p><a name="3"><strong><h3>Amendment III</h3></strong></a>\n
\n
<p></p><p><p>No soldier shall, in time of peace be quartered in any house,\n
without the consent of the owner, nor in time of war, but\n
in a manner to be prescribed by law.\n
\n
\n
</p><p><a name="4"><strong><h3>Amendment IV</h3></strong></a>\n
\n
<p></p><p><p>The right of the people to be secure in their persons, houses,\n
papers, and effects, against unreasonable searches and seizures,\n
shall not be violated, and no warrants shall issue, but upon\n
probable cause, supported by oath or affirmation, and\n
particularly describing the place to be searched, and the\n
persons or things to be seized.\n
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</p><p><a name="5"><strong><h3>Amendment V</h3></strong></a>\n
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<p></p><p>No person shall be held to answer for a capital, or otherwise\ninfamous crime, unless on a presentment or indictment of a grand\njury, except in cases arising in the land or naval forces,\nor in the militia, when in actual service in time of war\nor public danger; nor shall any person be subject for the\nsame offense to be twice put in jeopardy of life or limb;\nnor shall be compelled in any criminal case to be a witness\nagainst himself, nor be deprived of life, liberty, or property,\nwithout due process of law; nor shall private property be\ntaken for public use, without just compensation.\n\n</p><p><h3>Amendment VI</h3>\n\n<p></p><p>In all criminal prosecutions, the accused shall enjoy the right\n to a speedy and public trial, by an impartial jury of the state\n and district wherein the crime shall have been committed, which\ndistrict shall have been previously ascertained by law, and\n to be informed of the nature and cause of the accusation;\n to be confronted with the witnesses against him; to have\n compulsory process for obtaining witnesses in his favor,\n and to have the assistance of counsel for his defense.\n\n</p><p><h3>Amendment VII</h3>\n\n<p></p><p>In suits at common law, where the value in controversy shall\n exceed twenty dollars, the right of trial by jury shall be\n preserved, and no fact tried by a jury, shall be otherwise\n reexamined in any court of the United States, than according\n to the rules of the common law.\n\n</p><p><h3>Amendment VIII</h3>\n\n<p></p><p>Excessive bail shall not be required, nor excessive fines\n imposed, nor cruel and unusual punishments inflicted.\n\n</p><p><h3>Amendment IX</h3>\n\n<p></p><p>The enumeration in the Constitution, of certain rights, shall\n not be construed to deny or disparage others retained by the people.\n\n</p><p><h3>Amendment X</h3>\n\n<p></p>\n<p>The powers not delegated to the United States by the Constitution, nor prohibited \n by it to the states, are reserved to the states respectively, or to the people.</p>\n</body></html>