HO CHI MINH UNIVERSITY OF TECHNOLOGY
Faculty of Computer Science and Engineering

Computer Networks

Report for lab 7

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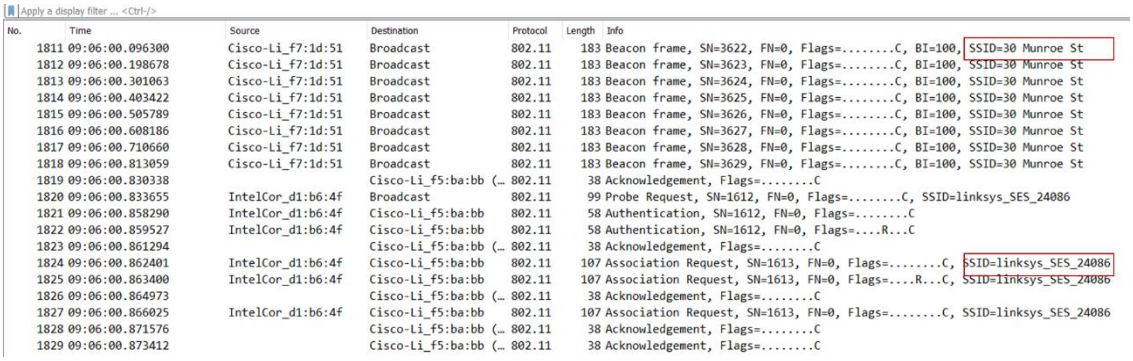
1/ What are the SSIDs of the two access points that are issuing most of the beacon frames in this trace?

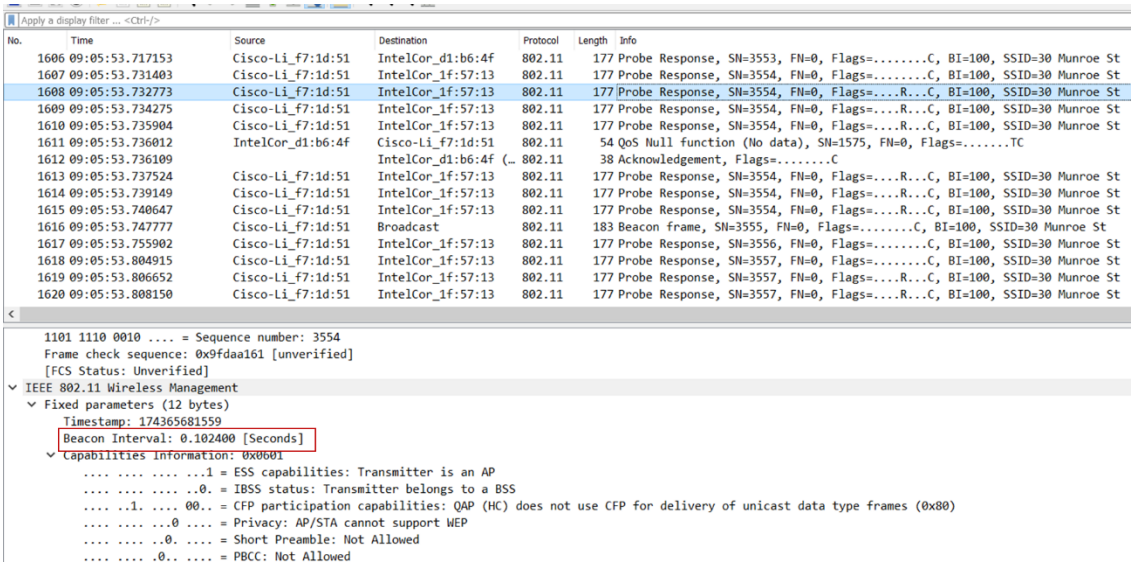
Answer: The two access points that are issuing most of the beacon frames have an SSID of "30 Munroe St" and "linsys_SES_24086"



No.	Time	Source	Destination	Protocol	Length	Info
1811	09:06:00.096300	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3622, FN=0, Flags=........C, BI=100, SSID=30 Munroe St
1812	09:06:00.198678	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3623, FN=0, Flags=........C, BI=100, SSID=30 Munroe St
1813	09:06:00.301063	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3624, FN=0, Flags=........C, BI=100, SSID=30 Munroe St
1814	09:06:00.403422	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3625, FN=0, Flags=........C, BI=100, SSID=30 Munroe St
1815	09:06:00.505789	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3626, FN=0, Flags=........C, BI=100, SSID=30 Munroe St
1816	09:06:00.608186	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3627, FN=0, Flags=........C, BI=100, SSID=30 Munroe St
1817	09:06:00.710660	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3628, FN=0, Flags=........C, BI=100, SSID=30 Munroe St
1818	09:06:00.813059	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3629, FN=0, Flags=........C, BI=100, SSID=30 Munroe St
1819	09:06:00.830338		Cisco-Li_f5:ba:bb (…	802.11	38	Acknowledgement, Flags=........C
1820	09:06:00.833655	IntelCor_d1:b6:4f	Broadcast	802.11	99	Probe Request, SN=1612, FN=0, Flags=........C, SSID=linksys_SES_24086
1821	09:06:00.858290	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	58	Authentication, SN=1612, FN=0, Flags=........C
1822	09:06:00.859527	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	58	Authentication, SN=1612, FN=0, Flags=....R...C
1823	09:06:00.861294		Cisco-Li_f5:ba:bb (…	802.11	38	Acknowledgement, Flags=........C
1824	09:06:00.862401	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	107	Association Request, SN=1613, FN=0, Flags=........C, SSID=linksys_SES_24086
1825	09:06:00.863400	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	107	Association Request, SN=1613, FN=0, Flags=....R...C, SSID=linksys_SES_24086
1826	09:06:00.864973		Cisco-Li_f5:ba:bb (…	802.11	38	Acknowledgement, Flags=........C
1827	09:06:00.866025	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	107	Association Request, SN=1613, FN=0, Flags=........C, SSID=linksys_SES_24086
1828	09:06:00.871576		Cisco-Li_f5:ba:bb (…	802.11	38	Acknowledgement, Flags=........C
1829	09:06:00.873412		Cisco-Li_f5:ba:bb (…	802.11	38	Acknowledgement, Flags=........C

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?

Answer: The intervals of time between the transmissions of the beacon frames of both access point is 0.1024 second

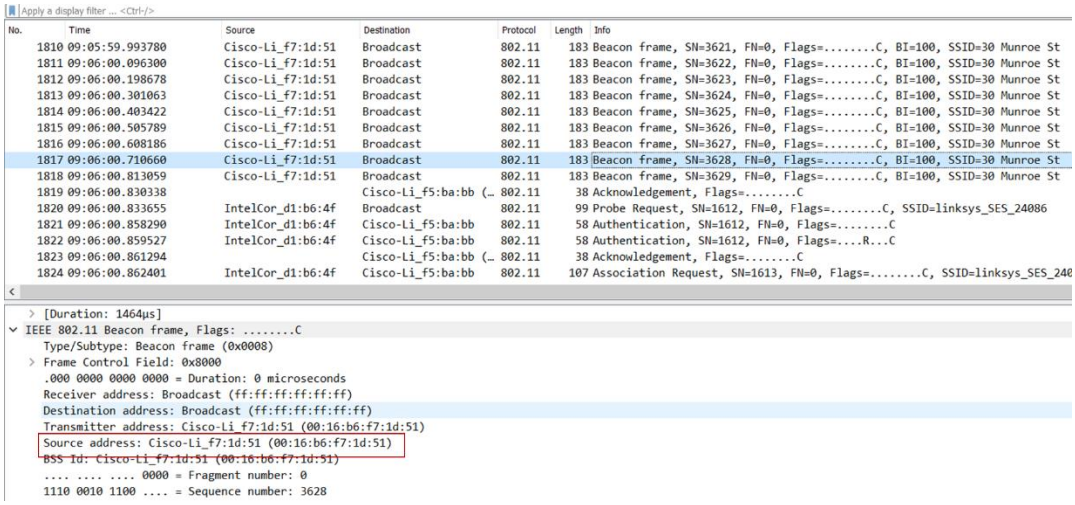


No.	Time	Source	Destination	Protocol	Length	Info
1606	09:05:53.717153	Cisco-Li_f7:1d:51	IntelCor_d1:b6:4f	802.11	177	Probe Response, SN=3553, FN=0, Flags=........C, BI=100, SSID=30 Munroe St
1607	09:05:53.731403	Cisco-Li_f7:1d:51	IntelCor_1f:57:13	802.11	177	Probe Response, SN=3554, FN=0, Flags=........C, BI=100, SSID=30 Munroe St
1608	09:05:53.732773	Cisco-Li_f7:1d:51	IntelCor_1f:57:13	802.11	177	Probe Response, SN=3554, FN=0, Flags=....R...C, BI=100, SSID=30 Munroe St
1609	09:05:53.734275	Cisco-Li_f7:1d:51	IntelCor_1f:57:13	802.11	177	Probe Response, SN=3554, FN=0, Flags=....R...C, BI=100, SSID=30 Munroe St
1610	09:05:53.735904	Cisco-Li_f7:1d:51	IntelCor_1f:57:13	802.11	177	Probe Response, SN=3554, FN=0, Flags=....R...C, BI=100, SSID=30 Munroe St
1611	09:05:53.736012	IntelCor_d1:b6:4f	Cisco-Li_f7:1d:51	802.11	54	QoS Null function (No data), SN=1575, FN=0, Flags=.......TC
1612	09:05:53.736109		IntelCor_d1:b6:4f (…	802.11	38	Acknowledgement, Flags=........C
1613	09:05:53.737524	Cisco-Li_f7:1d:51	IntelCor_1f:57:13	802.11	177	Probe Response, SN=3554, FN=0, Flags=....R...C, BI=100, SSID=30 Munroe St
1614	09:05:53.739149	Cisco-Li_f7:1d:51	IntelCor_1f:57:13	802.11	177	Probe Response, SN=3554, FN=0, Flags=....R...C, BI=100, SSID=30 Munroe St
1615	09:05:53.740647	Cisco-Li_f7:1d:51	IntelCor_1f:57:13	802.11	177	Probe Response, SN=3554, FN=0, Flags=....R...C, BI=100, SSID=30 Munroe St
1616	09:05:53.747777	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3555, FN=0, Flags=........C, BI=100, SSID=30 Munroe St
1617	09:05:53.755902	Cisco-Li_f7:1d:51	IntelCor_1f:57:13	802.11	177	Probe Response, SN=3556, FN=0, Flags=........C, BI=100, SSID=30 Munroe St
1618	09:05:53.804915	Cisco-Li_f7:1d:51	IntelCor_1f:57:13	802.11	177	Probe Response, SN=3557, FN=0, Flags=........C, BI=100, SSID=30 Munroe St
1619	09:05:53.806652	Cisco-Li_f7:1d:51	IntelCor_1f:57:13	802.11	177	Probe Response, SN=3557, FN=0, Flags=....R...C, BI=100, SSID=30 Munroe St
1620	09:05:53.808150	Cisco-Li_f7:1d:51	IntelCor_1f:57:13	802.11	177	Probe Response, SN=3557, FN=0, Flags=....R...C, BI=100, SSID=30 Munroe St

```
    1101 1110 0010 .... = Sequence number: 3554
    Frame check sequence: 0x9fdaa161 [unverified]
    [FCS Status: Unverified]
IEEE 802.11 Wireless Management
  Fixed parameters (12 bytes)
      Timestamp: 174365681559
      Beacon Interval: 0.102400 [Seconds]
    Capabilities Information: 0x0601
        .... .... .... ...1 = ESS capabilities: Transmitter is an AP
        .... .... .... ..0. = IBSS status: Transmitter belongs to a BSS
        .... ..1. .... 00.. = CFP participation capabilities: QAP (HC) does not use CFP for delivery of unicast data type frames (0x80)
        .... .... ...0 .... = Privacy: AP/STA cannot support WEP
        .... .... ..0. .... = Short Preamble: Not Allowed
        .... .... .0.. .... = PBCC: Not Allowed
```

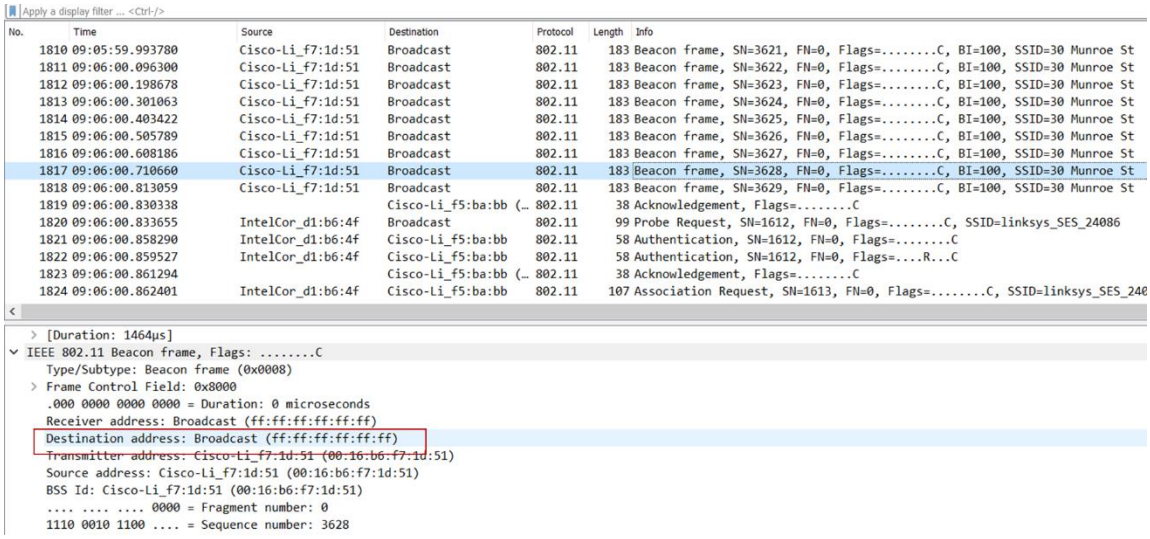
3/ What (in hexadecimal notation) is the source MAC address on the beacon frame from 30 Munroe St?

Answer: The source MAC on the beacon frame from 30 Munroe St is 00:16:b6:f7:1d:51.



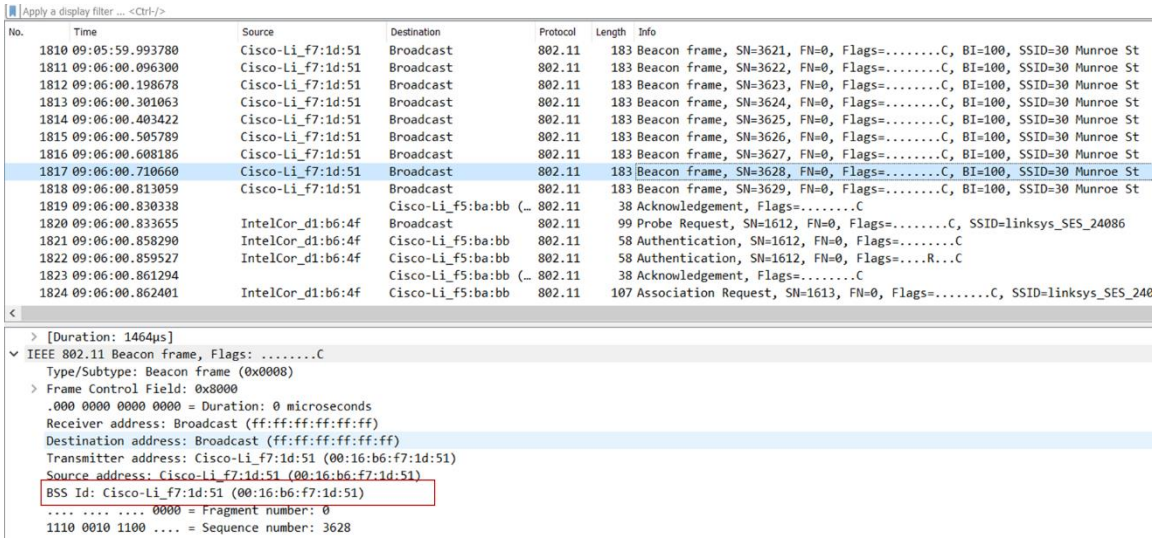
4/ What (in hexadecimal notation) is the destination MAC address on the beacon frame from 30 Munroe St?

Answer: The destination MAC is for broadcast. The destination MAC is ff:ff:ff:ff:ff:ff



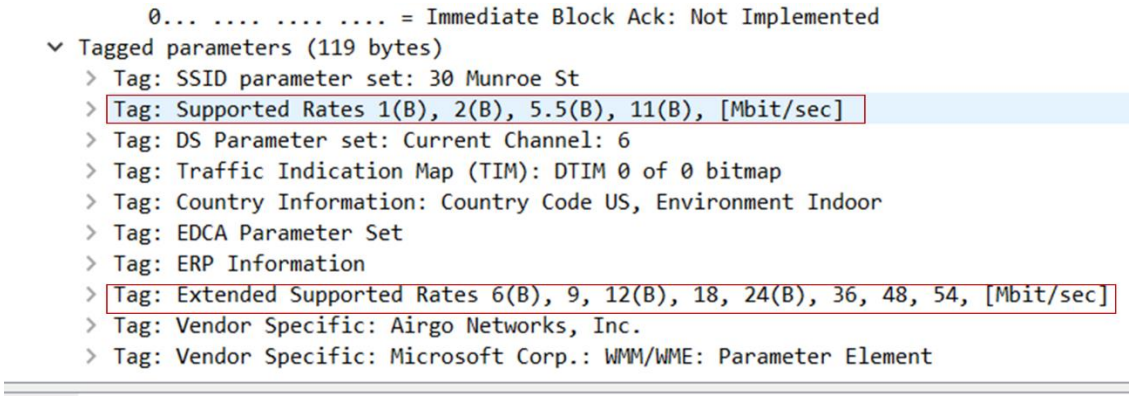
5/ What (in hexadecimal notation) is the MAC BSS id on the beacon frame from 30 Munroe St?

Answer: The MAC BSS is on the beacon frame from 30 Munroe St is 00:16:b6:f7:1d:51.



6/ The beacon frames from the 30 Munroe St access point advertise that the access point can support four data rates and eight additional "extended supported rates." What are these rates?

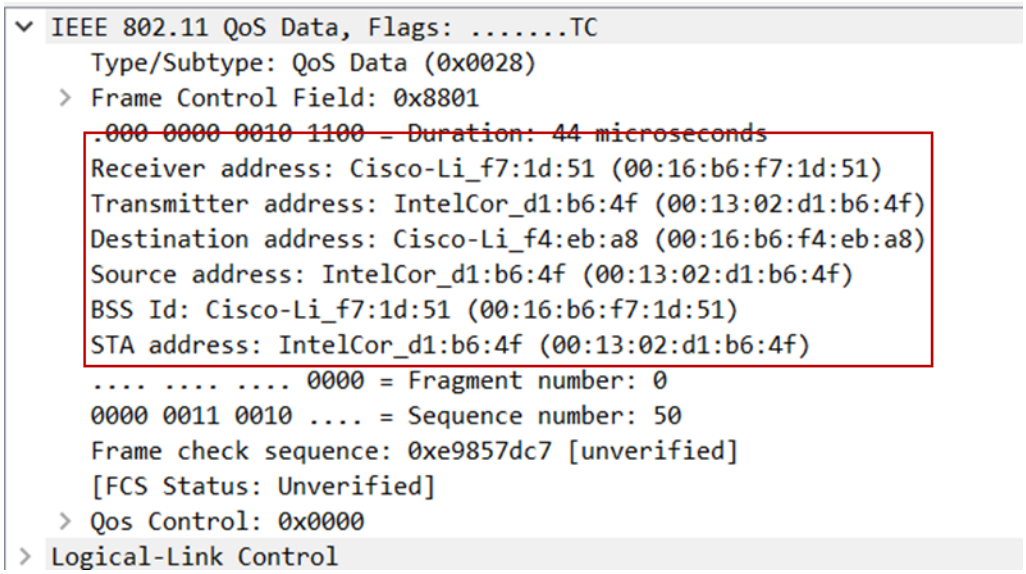
Answer: : The support rates are 1.0, 2.0, 5.5, 11.0 Mbps. The extended ates are 6.0, 9.0, 12.0, 18.0, 24.0, 36.0, 48.0 and 54.0 Mbps

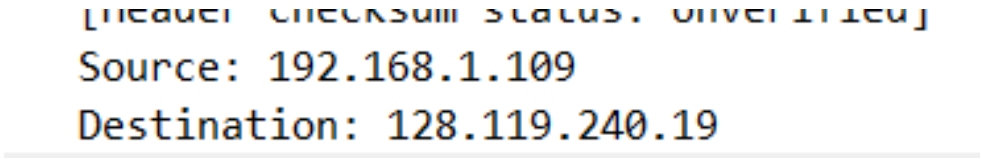


7/ Find the 802.11 frame containing the SYN TCP segment for this first TCP session (that downloads alice.txt). What are three MAC address fields in the 802.11 frame? Which MAC address in this frame corresponds to the wireless host (give the hexadecimal representation of the MAC address for the host)? To the access point? To the first-hop router? What is the IP address of the wireless host sending this TCP segment? What is the destination IP address? Does this destination IP address correspond to the host, access point, first-hop router, or some other network-attached device? Explain.

Answer:

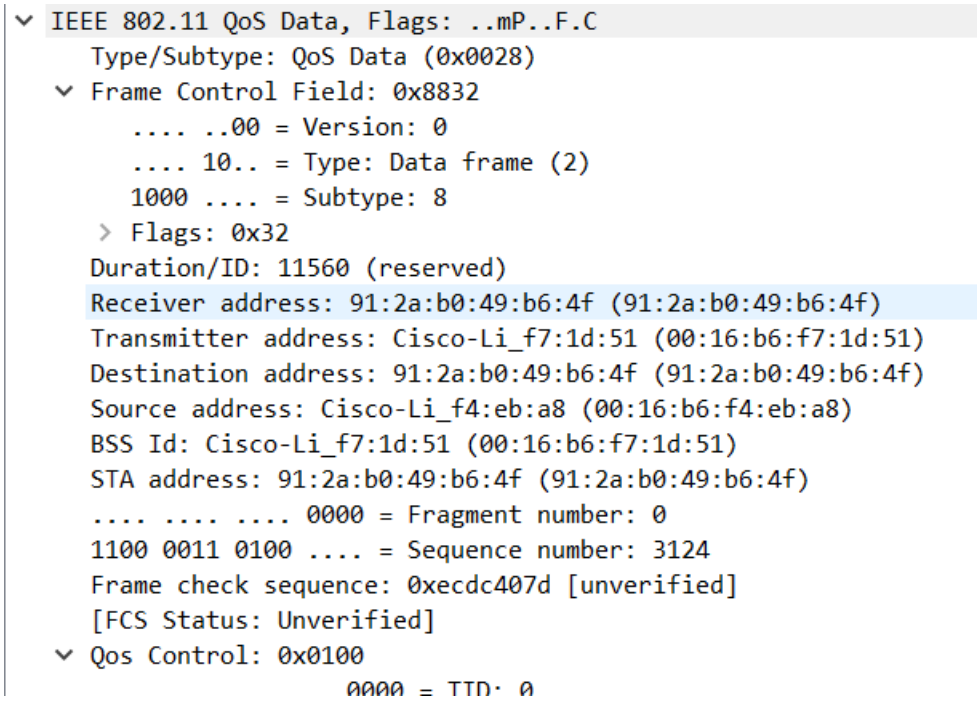
The MAC address corresponds to the wireless host is 00:13:02:d1:b6:4f.
Corresponding to the first hop router is 00:16:b6:f4:eb:a8.
Corresponding to the wireless host sending this TCP segment is 00:16:b6:f7:1d:51.
The corresponding IP of the wireless host device is 192.168.1.109.
The destination IP is 128.199.245.12 and this IP is corresponding to the server.



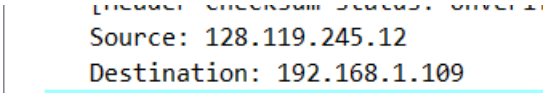


8/ What are three MAC address fields in the 802.11 frame? Which MAC address in this frame corresponds to the host? To the access point? To the first-hop router? Does the sender MAC address in the frame correspond to the IP address of the device that sent the TCP segment encapsulated within this datagram?

Answer: The MAC address for the sender of the 802.11 frame containing the TCP SYNACK segment is 00:16:b6:f4:eb:a8, which is the 1st hop router to which the host is attached . The MAC address for the destination, which the host itself, is 91:2a:b0:49:b6:4f.



The Source IP is the IP for the server gaia.cs.umass.adu. Destination IP is the IP of our wireless computer.



The sender MAC address in the frame does not correspond to the IP address of the device that sent the TCP segment encapsulated within this datagram, because the TCP SYNACK's IP address is 128:199:245:12 but the destination IP address is 192.168.1.109.

9/ What two actions are taken (i.e., frames are sent) by the host in the trace just after t=49, to end the association with the 30 Munroe St AP that was initially in place when trace collection began? Looking at the 802.11 specification, is there another frame that you might have expected to see, but don't see here?

Answer:

At t = 49.583615 a DHCP release is sent by the host to the DHCP server (whose IP address is 192.168.1.1). The host sends a DEAUTHENTICATION frame after 0.02s. We expected to see a Disassociation request.

1732	49.542481	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3588, FN=0, Flags=........C, BI=100, SSID=30 Munroe St
1733	49.583615	192.168.1.109	192.168.1.1	DHCP	390	DHCP Release - Transaction ID 0xea5a526
1734	49.583771		IntelCor_d1:b6:4f (…	802.11	38	Acknowledgement, Flags=........C
1735	49.609617	IntelCor_d1:b6:4f	Cisco-Li_f7:1d:51	802.11	54	Deauthentication, SN=1605, FN=0, Flags=........C
1736	49.609770		IntelCor_d1:b6:4f (…	802.11	38	Acknowledgement, Flags=........C
1737	49.614478	IntelCor_d1:b6:4f	Broadcast	802.11	99	Probe Request, SN=1606, FN=0, Flags=........C, SSID=linksys_SES_24086
1738	49.615869		Cisco-Li_f5:ba:bb (…	802.11	38	Acknowledgement, Flags=........C

10/ Examine the trace file and look for AUTHENICATION frames sent from the host to an AP and vice versa. How many AUTHENTICATION messages are sent from the wireless host to the linksys_ses_24086 AP (which has a MAC address of Cisco_Li_f5:ba:bb) starting at around t=49?

Answer: There are 17 AUTHENTICATION messages

2166	63.192101	Cisco-Li_f7:1d:51	IntelCor_d1:b6:4f	802.11	94	Association Response, SN=3728, FN=0, Flags=........C
1740	49.638857	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	58	Authentication, SN=1606, FN=0, Flags=........C
1741	49.639700	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	58	Authentication, SN=1606, FN=0, Flags=....R...C
1742	49.640702	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	58	Authentication, SN=1606, FN=0, Flags=....R...C
1744	49.642315	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	58	Authentication, SN=1606, FN=0, Flags=....R...C
1746	49.645319	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	58	Authentication, SN=1606, FN=0, Flags=....R...C
1749	49.649705	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	58	Authentication, SN=1606, FN=0, Flags=....R...C
1821	53.785833	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	58	Authentication, SN=1612, FN=0, Flags=........C
1822	53.787070	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	58	Authentication, SN=1612, FN=0, Flags=....R...C
1921	57.889232	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	58	Authentication, SN=1619, FN=0, Flags=........C
1922	57.890325	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	58	Authentication, SN=1619, FN=0, Flags=....R...C
1923	57.891321	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	58	Authentication, SN=1619, FN=0, Flags=....R...C
1924	57.896970	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	58	Authentication, SN=1619, FN=0, Flags=....R...C
2122	62.171951	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	58	Authentication, SN=1644, FN=0, Flags=........C
2123	62.172946	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	58	Authentication, SN=1644, FN=0, Flags=....R...C
2124	62.174070	IntelCor_d1:b6:4f	Cisco-Li_f5:ba:bb	802.11	58	Authentication, SN=1644, FN=0, Flags=....R...C
2156	63.168087	IntelCor_d1:b6:4f	Cisco-Li_f7:1d:51	802.11	58	Authentication, SN=1647, FN=0, Flags=........C
2160	63.169707	IntelCor_d1:b6:4f	Cisco-Li_f7:1d:51	802.11	58	Authentication, SN=1647, FN=0, Flags=....R...C
2158	63.169071	Cisco-Li_f7:1d:51	IntelCor_d1:b6:4f	802.11	58	Authentication, SN=3726, FN=0, Flags=........C
2164	63.170692	Cisco-Li_f7:1d:51	IntelCor_d1:b6:4f	802.11	58	Authentication, SN=3727, FN=0, Flags=........C

11/ Does the host want the authentication to require a key or be open?

Answer: the host wants the authentication to require open.

```
▾ IEEE 802.11 Wireless Management
  ▾ Fixed parameters (6 bytes)
      Authentication Algorithm: Open System (0)
```

12/ Do you see a reply AUTHENTICATION from the linksys_ses_24086 AP in the trace?

Answer: There isn't any reply from the AP. This is probably because the AP is configured to require a key when associating with that AP, so the AP is likely ignoring

13/ At what times are there an AUTHENTICATION frame from the host to the 30 Munroe St. AP, and when is there a reply AUTHENTICATION sent from that AP to the host in reply?

Answer: At t = 63.168087 there is a AUTHENTICATION frame sent from 00:13:02:d1:b6:4f (the wireless host) to 00:16:b7:f7:1d:51 (the BSS). At t = 63.169071 there is an AUTHENTICATION from sent in the reverse direction from the BSS to the wireless host.

```
2124 62.174070 IntelCor_d1:b6:4f    Cisco-Li_f5:ba:bb    802.11      58 Authentication, SN=1644, FN=0, Flags=....R...C
2156 63.168087 IntelCor_d1:b6:4f    Cisco-Li_f7:1d:51    802.11      58 Authentication, SN=1647, FN=0, Flags=........C
2160 63.169707 IntelCor_d1:b6:4f    Cisco-Li_f7:1d:51    802.11      58 Authentication, SN=1647, FN=0, Flags=....R...C
2158 63.169071 Cisco-Li_f7:1d:51    IntelCor_d1:b6:4f    802.11      58 Authentication, SN=3726, FN=0, Flags=........C
2164 63.170692 Cisco-Li_f7:1d:51    IntelCor_d1:b6:4f    802.11      58 Authentication, SN=3727, FN=0, Flags=........C
```

14/ At what time is there an ASSOCIATE REQUEST from host to the 30 Munroe St AP? When is the corresponding ASSOCIATE REPLY sent?

Answer: At t = 63.169910 there is an ASSOCIATE REQUEST frame sent from 00:13:02:d1:b6:4f (the wireless host) to 00:16:b7:f7:1d:51 (the BSS). At t = 63.192101 there is an ASSOCIATE RESPONSE from sent in the reverse direction from the BSS to the wireless host.

```
63.169910     IntelCor_d1:b6:4f   Cisco-Li_f7:1d:51   802.11      89 Association Request, SN=1648, FN=0, F
63.170008                         IntelCor_d1:b6:4f (802.11       38 Acknowledgement, Flags=........C
63.170692     Cisco-Li_f7:1d:51   IntelCor_d1:b6:4f   802.11      58 Authentication, SN=3727, FN=0, Flags=
63.171000                         Cisco-Li_f7:1d:51 (802.11       38 Acknowledgement, Flags=........C
63.192101     Cisco-Li_f7:1d:51   IntelCor_d1:b6:4f   802.11      94 Association Response, SN=3728, FN=0,
```

```
No.     Time           Source                Destination           Protocol Length Info
   2162 63.169910      IntelCor_d1:b6:4f     Cisco-Li_f7:1d:51     802.11   89     Association Request, SN=1648, FN=0, Flags=........C,
SSID=30 Munroe St
Frame 2162: 89 bytes on wire (712 bits), 89 bytes captured (712 bits)
Radiotap Header v0, Length 24
802.11 radio information
IEEE 802.11 Association Request, Flags: ........C
    Type/Subtype: Association Request (0x0000)
    Frame Control Field: 0x0000
    .000 0000 0010 1100 = Duration: 44 microseconds
    Receiver address: Cisco-Li_f7:1d:51 (00:16:b6:f7:1d:51)
    Destination address: Cisco-Li_f7:1d:51 (00:16:b6:f7:1d:51)
    Transmitter address: IntelCor_d1:b6:4f (00:13:02:d1:b6:4f)
    Source address: IntelCor_d1:b6:4f (00:13:02:d1:b6:4f)
    BSS Id: Cisco-Li_f7:1d:51 (00:16:b6:f7:1d:51)
    .... .... .... 0000 = Fragment number: 0
    0110 0111 0000 .... = Sequence number: 1648
    Frame check sequence: 0xfe3badc6 [unverified]
    [FCS Status: Unverified]
IEEE 802.11 Wireless Management
```

```
No.     Time           Source                Destination           Protocol Length Info
   2166 63.192101      Cisco-Li_f7:1d:51     IntelCor_d1:b6:4f     802.11   94     Association Response, SN=3728, FN=0, Flags=........C
Frame 2166: 94 bytes on wire (752 bits), 94 bytes captured (752 bits)
Radiotap Header v0, Length 24
802.11 radio information
IEEE 802.11 Association Response, Flags: ........C
    Type/Subtype: Association Response (0x0001)
    Frame Control Field: 0x1000
    .000 0001 0011 1010 = Duration: 314 microseconds
    Receiver address: IntelCor_d1:b6:4f (00:13:02:d1:b6:4f)
    Destination address: IntelCor_d1:b6:4f (00:13:02:d1:b6:4f)
    Transmitter address: Cisco-Li_f7:1d:51 (00:16:b6:f7:1d:51)
    Source address: Cisco-Li_f7:1d:51 (00:16:b6:f7:1d:51)
    BSS Id: Cisco-Li_f7:1d:51 (00:16:b6:f7:1d:51)
    .... .... .... 0000 = Fragment number: 0
    1110 1001 0000 .... = Sequence number: 3728
    Frame check sequence: 0x37f2ab2b [unverified]
    [FCS Status: Unverified]
IEEE 802.11 Wireless Management
```

15/ What transmission rates is the host willing to use? The AP?

Answer: In the ASSOCIATION REQUEST frame the supported rates are advertised as 1, 2, 5.5, 11, 6, 9, 12, 18, 24, 32, 48, and 54 Mbps. The same rates are advertised in the ASSOCIATION RESPONSE

```
⊞ Tag: Supported Rates 1(B), 2(B), 5.5(B), 11(B), 6(B), 9, 12(B), 18, [Mbit/sec]
⊞ Tag: QoS Capability
⊟ Tag: Extended Supported Rates 24(B), 36, 48, 54, [Mbit/sec]
```

```
Tagged parameters (36 bytes)
⊞ Tag: Supported Rates 1(B), 2(B), 5.5(B), 11(B), [Mbit/sec]
⊞ Tag: Extended Supported Rates 6(B), 9, 12(B), 18, 24(B), 36, 48, 54, [Mbit/sec]
```

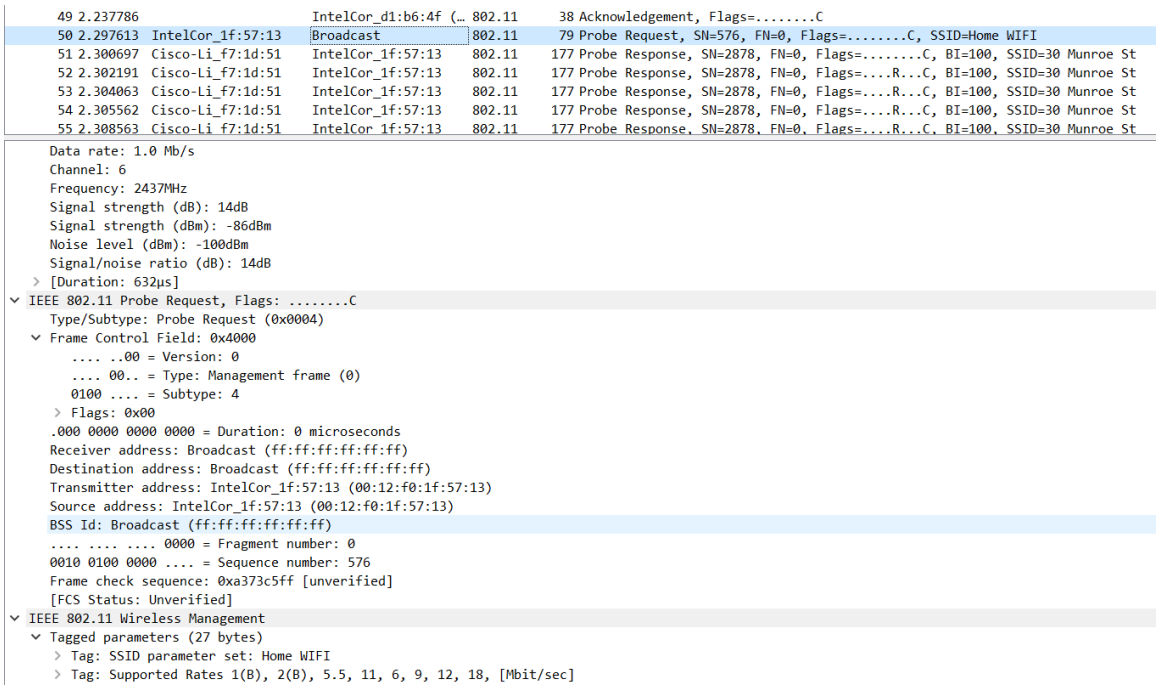
16/ What are the sender, receiver and BSS ID MAC addresses in these frames? What is the purpose of these two types of frames?

Answer:

Probe request: Source: 00:12:f0:1f:57:13, destination: ff:ff:ff:ff:ff:ff, BSSID: ff:ff:ff:ff:ff:ff.

Probe response: Source: 00:16:b6:f7:1d:51, destination: 00:16:b6:f7:1d:51, BSSID: 00:16:b6:f7:1d:51.

The probe request is a broadcast to scan for an access point from the host. The probe response is used to response the host from the access point.



```
    49 2.237786                    IntelCor_d1:b6:4f (… 802.11      38 Acknowledgement, Flags=........C
    50 2.297613  IntelCor_1f:57:13  Broadcast            802.11      79 Probe Request, SN=576, FN=0, Flags=........C, SSID=Home WIFI
    51 2.300697  Cisco-Li_f7:1d:51  IntelCor_1f:57:13    802.11     177 Probe Response, SN=2878, FN=0, Flags=........C, BI=100, SSID=30 Munroe St
    52 2.302191  Cisco-Li_f7:1d:51  IntelCor_1f:57:13    802.11     177 Probe Response, SN=2878, FN=0, Flags=....R...C, BI=100, SSID=30 Munroe St
    53 2.304063  Cisco-Li_f7:1d:51  IntelCor_1f:57:13    802.11     177 Probe Response, SN=2878, FN=0, Flags=....R...C, BI=100, SSID=30 Munroe St
    54 2.305562  Cisco-Li_f7:1d:51  IntelCor_1f:57:13    802.11     177 Probe Response, SN=2878, FN=0, Flags=....R...C, BI=100, SSID=30 Munroe St
    55 2.308563  Cisco-Li_f7:1d:51  IntelCor_1f:57:13    802.11     177 Probe Response, SN=2878, FN=0, Flags=....R...C, BI=100, SSID=30 Munroe St
    Data rate: 1.0 Mb/s
    Channel: 6
    Frequency: 2437MHz
    Signal strength (dB): 14dB
    Signal strength (dBm): -86dBm
    Noise level (dBm): -100dBm
    Signal/noise ratio (dB): 14dB
  > [Duration: 632µs]
v IEEE 802.11 Probe Request, Flags: ........C
    Type/Subtype: Probe Request (0x0004)
  v Frame Control Field: 0x4000
        .... ..00 = Version: 0
        .... 00.. = Type: Management frame (0)
        0100 .... = Subtype: 4
    > Flags: 0x00
    .000 0000 0000 0000 = Duration: 0 microseconds
    Receiver address: Broadcast (ff:ff:ff:ff:ff:ff)
    Destination address: Broadcast (ff:ff:ff:ff:ff:ff)
    Transmitter address: IntelCor_1f:57:13 (00:12:f0:1f:57:13)
    Source address: IntelCor_1f:57:13 (00:12:f0:1f:57:13)
    BSS Id: Broadcast (ff:ff:ff:ff:ff:ff)
    .... .... .... 0000 = Fragment number: 0
    0010 0100 0000 .... = Sequence number: 576
    Frame check sequence: 0xa373c5ff [unverified]
    [FCS Status: Unverified]
v IEEE 802.11 Wireless Management
  v Tagged parameters (27 bytes)
    > Tag: SSID parameter set: Home WIFI
    > Tag: Supported Rates 1(B), 2(B), 5.5, 11, 6, 9, 12, 18, [Mbit/sec]
```