

```
Terminal Shell Edit View Window Help shougalamer - bash - 204x63
options=3-RXCSUM,TXCSUM-
inet_pton: i1 prefixlen 128
inet_pton: i2 prefixlen 64 scopeid 0xf0000000
inet_pton: i3 prefixlen 64 scopeid 0x1
nd6 options=1-PERFORMNUD>
gif0: flags=8010<POINTOPOINT,MULTICAST> mtu 1280
stf0: flags=8c mtu 1280
eno0: flags=41<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
    ether 7c:dc:c3:eb:c6:eb
    inet 192.168.1.155 netmask 0xffffffff00 broadcast 192.168.1.255
        media: autoselect
        status: active
en1: flags=8010<POINTOPOINT,MULTICAST,SMART,RUNNING,PROMISC,SIMPLEX,MULTICAST> mtu 1500
    options=80<TS04,TS06>
    ether 32:00:11:60:a7:40
    media: autoselect <full-duplex>
    status: inactive
bridge0: flags=804<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
    options=83-RXCSUM,TXCSUM,TS04,TS06>
    ether 7e:dc:c3:eb:87:00
    Configuration:
        id 0:0:0:0:0:0 priority 0 helcltime 0 fwddelay 0
        mstid 0 holdint 0 proto stp maxaddr 10 timeout 1200
        root id 0:0:0:0:0:0 priority 0 ifcost 0 port 0
        ipfilter disabled flags 0x2
    member: en1 flags=3<LEARNING,DISCOVER>
        tmamaxadr 0 proto 5 priority 0 path cost 0
    nd6 options=1-PERFORMNUD>
    media: <unknown type>
    status: inactive
p2p0: flags=8843<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> mtu 2304
    ether 0e:dc:c3:eb:c6:eb
    media: autoselect
    status: inactive
awdl0: flags=8843<UP,BROADCAST,RUNNING,PROMISC,SIMPLEX,MULTICAST> mtu 1450
    ether 56:be:12:63:f4:8a
    inet_pton: fe80::56be:12ff:fe63:f48a%awdl0 prefixlen 64 scopeid 0x8
    nd6 options=1-PERFORMNUD>
    media: autoselect
    status: active
Airalkhasbshoug:~ shougalamer$
```

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

### 30 Munroe st and linksys\_SES\_24086

Wireshark File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help 16% U.S. Sun Apr 7 8:32 PM shouq alamer Search Expression... lab7.pdf (page 2 of 2)

Apply a display filter ... <%>

No.	Time	Source	Destination	Protocol	Length	Info
1478	22:05:48.833076	IntelCor_d1:b6:4f	Cisco-Li_f7:1d:51	802.11	54	QoS Null function (No data), SN=1564, FN=0, Flags=...R..TC
1479	22:05:48.833527	IntelCor_d1:b6:4f	Cisco-Li_f7:1d:51	802.11	54	QoS Null function (No data), SN=1564, FN=0, Flags=...R..TC
1480	22:05:48.834025	IntelCor_d1:b6:4f	Cisco-Li_f7:1d:51	802.11	54	QoS Null function (No data), SN=1564, FN=0, Flags=...R..TC
1481	22:05:48.834399	IntelCor_d1:b6:4f	IntelCor_d1:b6:4f -	802.11	38	Acknowledgement, Flags=.....C
1482	22:05:48.835154	IntelCor_d1:b6:4f	Cisco-Li_f7:1d:51	802.11	54	QoS Null function (No data), SN=1565, FN=0, Flags=...P...TC
1483	22:05:48.835252	IntelCor_d1:b6:4f	IntelCor_d1:b6:4f -	802.11	38	Acknowledgement, Flags=.....C
1484	22:05:48.839278	Linksys_07:22:94	Broadcast	802.11	98	Beacon frame, SN=3479, FN=0, Flags=.....C, BI=100
1485	22:05:48.935189	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3497, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1486	22:05:48.941403	Linksys_07:22:94	Broadcast	802.11	98	Beacon frame, SN=3480, FN=0, Flags=.....C, BI=100, SSID=linksys12
1487	22:05:49.037646	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3498, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1488	22:05:49.043785	Linksys_07:22:94	Broadcast	802.11	98	Beacon frame, SN=3481, FN=0, Flags=.....C, BI=100, SSID=linksys12
1489	22:05:49.140068	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3499, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1490	22:05:49.144288	Cisco-Li_f7:1d:51	Broadcast	802.11	1624	Unrecognized (Reserved Frame), Flags=op., R.M.T.
1491	22:05:49.242484	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3508, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1492	22:05:49.248652	Linksys_07:22:94	Broadcast	802.11	98	Beacon frame, SN=3483, FN=0, Flags=.....C, BI=100, SSID=linksys12
1493	22:05:49.349411	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3501, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1494	22:05:49.391779	Linksys_07:22:94	Broadcast	802.11	98	Beacon frame, SN=3484, FN=0, Flags=.....C, BI=100, SSID=linksys12
1495	22:05:49.447219	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3502, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1496	22:05:49.453577	Linksys_07:22:94	Sra5a5ffff:ffff:ffff	802.11	98	Beacon frame, SN=3485, FN=0, Flags=.....C, BI=100, SSID=linksys12
1497	22:05:49.540984	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3503, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1498	22:05:49.556007	Linksys_07:22:94	Broadcast	802.11	98	Beacon frame, SN=3486, FN=0, Flags=.....C, BI=100, SSID=linksys12
1499	22:05:49.665653	Cisco-Li_f5:b5:ba:bb	Broadcast	802.11	132	Beacon frame, SN=3640, FN=0, Flags=.....C, BI=100, SSID=linksys_SES_24086
1500	22:05:49.652813	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3584, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1501	22:05:49.754403	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3540, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1502	22:05:49.856857	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3506, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1503	22:05:49.857019	IntelCor_d1:b6:4f	Cisco-Li_f7:1d:51	802.11	54	QoS Null function (No data), SN=1566, FN=0, Flags=.....TC
1505	22:05:49.857119	IntelCor_d1:b6:4f	IntelCor_d1:b6:4f -	802.11	38	Acknowledgement, Flags=.....C
1506	22:05:49.857559	Cisco-Li_f7:1d:51	IntelCor_d1:b6:4f	802.11	177	Probe Response, SN=3507, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1506	22:05:49.857659	Cisco-Li_f7:1d:51	802.11	38	Acknowledgement, Flags=.....C	
1507	22:05:49.857783	Cisco-Li_f7:1d:51	IntelCor_d1:b6:4f	802.11	177	Probe Response, SN=3507, FN=0, Flags=...R...C, BI=100, SSID=30 Munroe St
1508	22:05:49.857893	Cisco-Li_f7:1d:51	802.11	38	Acknowledgement, Flags=.....C	
1509	22:05:49.858000	IntelCor_d1:b6:4f	Cisco-Li_f7:1d:51	802.11	54	QoS Null function (No data), SN=1567, FN=0, Flags=...P...TC
Frame 1499: 132 bytes on wire (1056 bits), 132 bytes captured (1056 bits)	Radiotap Header v0, Length 24	802.11 radio information	IEEE 802.11 Beacon frame, Flags: .....			

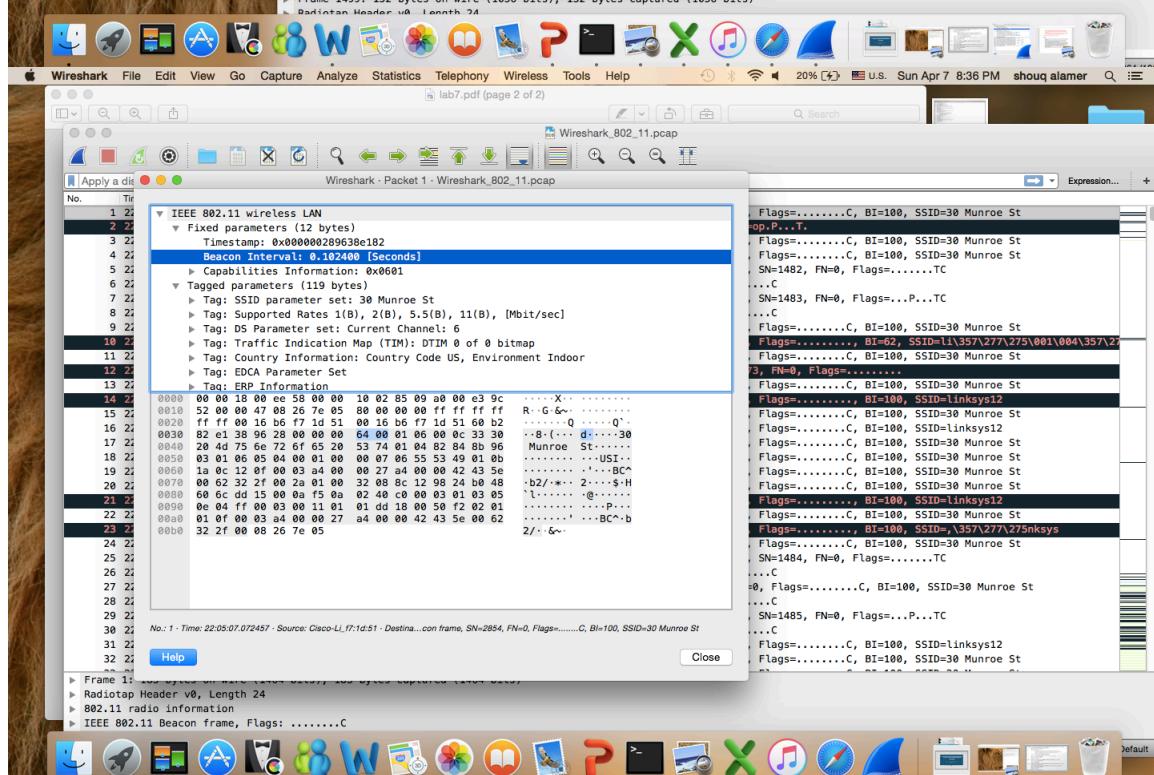
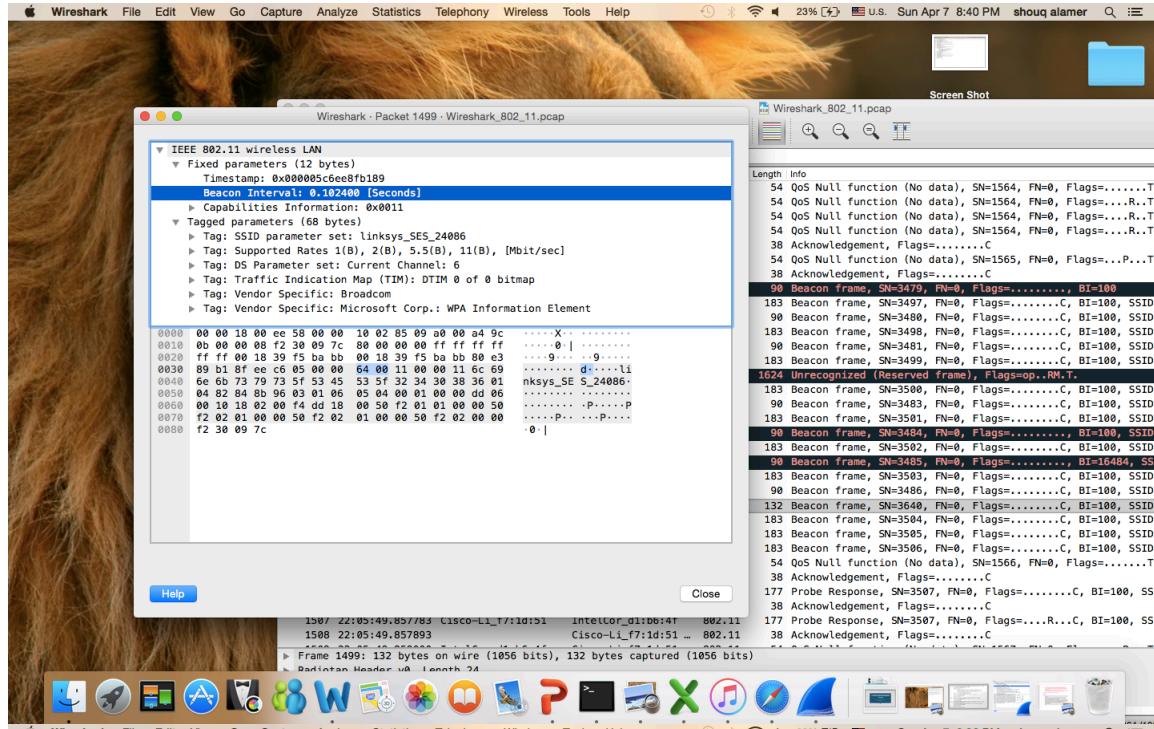
Wireshark File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help 14% U.S. Sun Apr 7 8:31 PM shouq alamer Search Expression... lab7.pdf (page 2 of 2)

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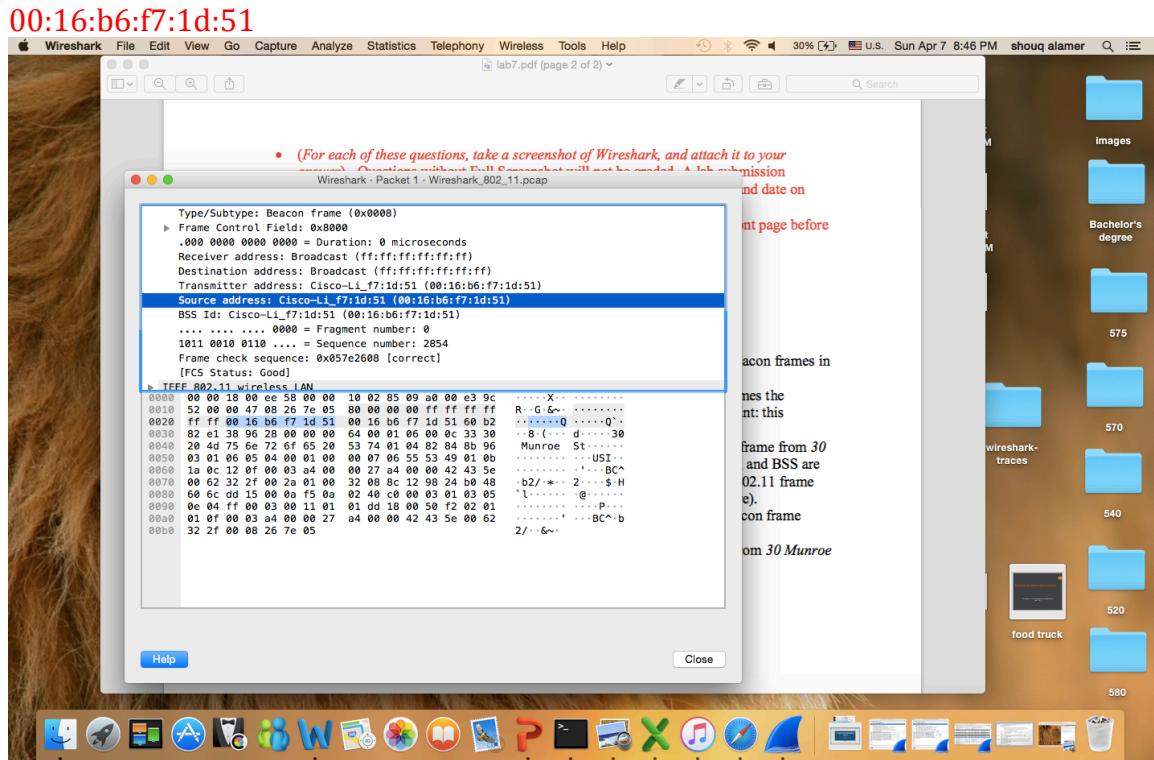
No.	Time	Source	Destination	Protocol	Length	Info
1732	22:05:50.614938	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3588, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1733	22:05:50.656072	192.168.1.109	192.168.1.1	DHCP	390	DHCP Release - Transaction ID 0xeaa5a526
1734	22:05:50.656228	IntelCor_d1:b6:4f	IntelCor_d1:b6:4f -	802.11	38	Deauthentication, Flags=.....C
1735	22:05:50.682074	IntelCor_d1:b6:4f	Cisco-Li_f7:1d:51	802.11	54	Deauthentication, SN=1605, FN=0, Flags=.....C
1736	22:05:50.682227	IntelCor_d1:b6:4f	IntelCor_d1:b6:4f -	802.11	38	Acknowledgement, Flags=.....C
1737	22:05:50.686935	IntelCor_d1:b6:4f	Broadcast	802.11	99	Probe Request, SN=1606, FN=0, Flags=.....C, SSID=linksys_SES_24086
1738	22:05:50.688326	Cisco-Li_f5:b5:ba:bb	Cisco-Li_f5:b5:ba:bb	802.11	38	Acknowledgement, Flags=.....C
1739	22:05:50.690170	Cisco-Li_f5:b5:ba:bb	Cisco-Li_f5:b5:ba:bb	802.11	38	Acknowledgement, Flags=.....C
1740	22:05:50.713134	IntelCor_d1:b6:4f	Cisco-Li_f5:b5:ba:bb	802.11	58	Authentication, SN=1606, FN=0, Flags=.....C
1741	22:05:50.712157	IntelCor_d1:b6:4f	Cisco-Li_f5:b5:ba:bb	802.11	58	Authentication, SN=1606, FN=0, Flags=...R...C
1742	22:05:50.713159	IntelCor_d1:b6:4f	Cisco-Li_f5:b5:ba:bb	802.11	58	Authentication, SN=1606, FN=0, Flags=...R..C
1743	22:05:50.714367	Cisco-Li_f5:b5:ba:bb	Cisco-Li_f5:b5:ba:bb	802.11	38	Acknowledgement, Flags=.....C
1744	22:05:50.714772	IntelCor_d1:b6:4f	Cisco-Li_f5:b5:ba:bb	802.11	58	Authentication, SN=1606, FN=0, Flags=...R..C
1745	22:05:50.717167	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=3589, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
1746	22:05:50.717776	IntelCor_d1:b6:4f	Cisco-Li_f5:b5:ba:bb	802.11	58	Authentication, SN=1606, FN=0, Flags=...R..C
1747	22:05:50.719168	Cisco-Li_f5:b5:ba:bb	Cisco-Li_f5:b5:ba:bb	802.11	38	Acknowledgement, Flags=.....C
1748	22:05:50.720284	Cisco-Li_f5:b5:ba:bb	Cisco-Li_f5:b5:ba:bb	802.11	38	Acknowledgement, Flags=.....C
1749	22:05:50.722162	IntelCor_d1:b6:4f	Cisco-Li_f5:b5:ba:bb	802.11	58	Authentication, SN=1606, FN=0, Flags=...R..C
1750	22:05:50.723535	IntelCor_d1:b6:4f	Cisco-Li_f5:b5:ba:bb	802.11	107	Association Request, SN=1607, FN=0, Flags=.....C, SSID=linksys_SES_24086
1751	22:05:50.725675	IntelCor_d1:b6:4f	Cisco-Li_f5:b5:ba:bb	802.11	107	Association Request, SN=1607, FN=0, Flags=...R..C, SSID=linksys_SES_24086
1752	22:05:50.735314	Cisco-Li_f5:b5:ba:bb	Cisco-Li_f5:b5:ba:bb	802.11	38	Acknowledgement, Flags=.....C
1753	22:05:50.736407	Cisco-Li_f5:b5:ba:bb	Cisco-Li_f5:b5:ba:bb	802.11	38	Acknowledgement, Flags=.....C
1754	22:05:50.738161	Cisco-Li_f5:b5:ba:bb	Cisco-Li_f5:b5:ba:bb	802.11	38	Acknowledgement, Flags=.....C
1755	22:05:50.741529	Cisco-Li_f5:b5:ba:bb	Cisco-Li_f5:b5:ba:bb	802.11	38	Acknowledgement, Flags=.....C
1756	22:05:50.743778	Cisco-Li_f5:b5:ba:bb	Cisco-Li_f5:b5:ba:bb	802.11	38	Acknowledgement, Flags=.....C
1757	22:05:50.745966	Cisco-Li_f5:b5:ba:bb	Cisco-Li_f5:b5:ba:bb	802.11	38	Acknowledgement, Flags=.....C
1758	22:05:50.747485	Cisco-Li_f5:b5:ba:bb	Cisco-Li_f5:b5:ba:bb	802.11	38	Acknowledgement, Flags=.....C
1759	22:05:50.749033	Cisco-Li_f5:b5:ba:bb	Cisco-Li_f5:b5:ba:bb	802.11	38	Acknowledgement, Flags=.....C
1760	22:05:50.751194	Cisco-Li_f5:b5:ba:bb	Cisco-Li_f5:b5:ba:bb	802.11	38	Acknowledgement, Flags=.....C
1761	22:05:50.757685	Cisco-Li_f5:b5:ba:bb	Cisco-Li_f5:b5:ba:bb	802.11	38	Acknowledgement, Flags=.....C
1762	22:05:50.765563	Cisco-Li_f5:b5:ba:bb	EAPOL	802.11	38	Acknowledgement, Flags=.....C
1763	22:05:50.768562	IntelCor_d1:b6:4f	Cisco-Li_f5:b5:ba:bb	EAPOL	185	Key (Message 2 of 4)
Frame 1745: 183 bytes on wire (1464 bits), 183 bytes captured (1464 bits)	Radiotap Header v0, Length 24	802.11 radio information	IEEE 802.11 Beacon frame, Flags: .....			

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).

0.102400 seconds

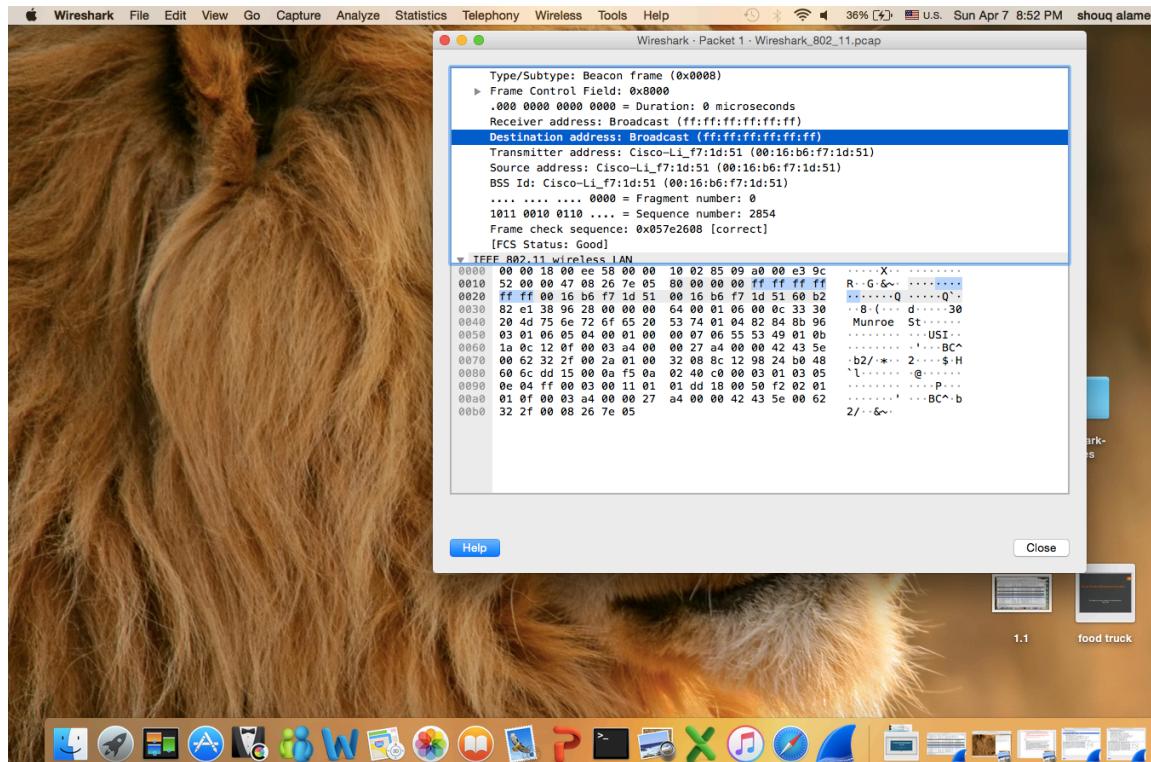


3. What (in hexadecimal notation) is the source MAC address on the beacon frame from *30 Munroe St*? Recall from Figure 7.13 in the text that the source, destination, and BSS are three addresses used in an 802.11 frame. For a detailed discussion of the 802.11 frame structure, see section 7 in the IEEE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



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

ff:ff:ff:ff:ff:ff



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

00:16:b6:f7:1d:51

