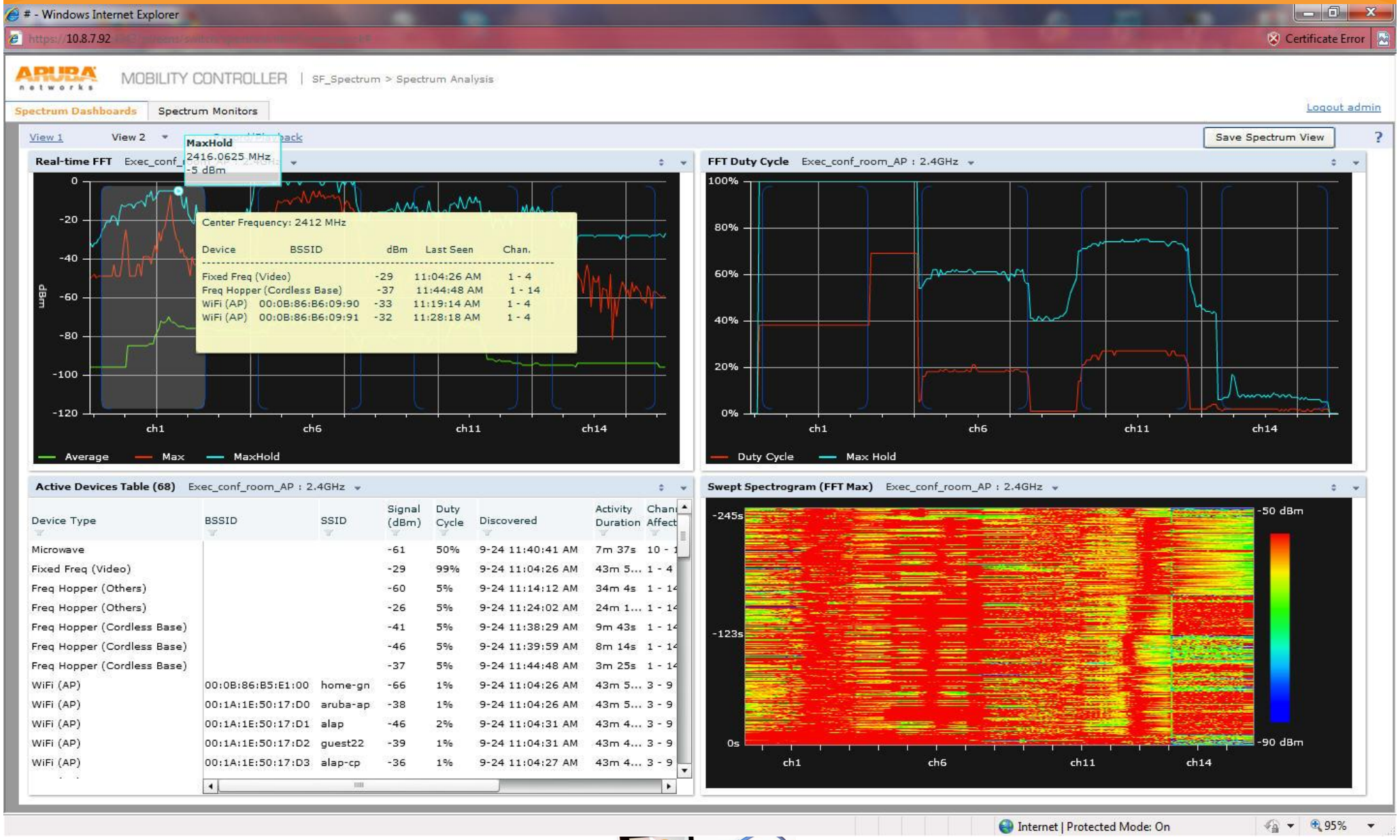
What Aruba Wireless Tools Could Check RF and 802.11 Health?

Wireless Tools – Spectrum Analysis

ARUBA networks

Wireless Tools – Spectrum Analysis



ARUBA networks

Wireless Tools – 802.11 Packet Capture

Performing an Aruba AP Remote 802.11 Packet Capture with Wireshark version 1.4.3 and newer

- **Setting up Aruba AP's to perform a remote packet capture for a laptop/desktop**
  1. SSH into an Aruba Controller that has APs.
  2. Find out which AP you would like to perform a remote wireless packet capture by using the CLI command "show ap active".
  3. Tell the AP to perform a remote packet capture and send the 802.11 data and above to the laptop/desktop that has Wireshark 1.4.3.

```
pcap raw-start <AP IP address> <Laptop/Desktop that has Wireshark 1.4.3 running> <a specified udp port> 0
```

ARUBA networks

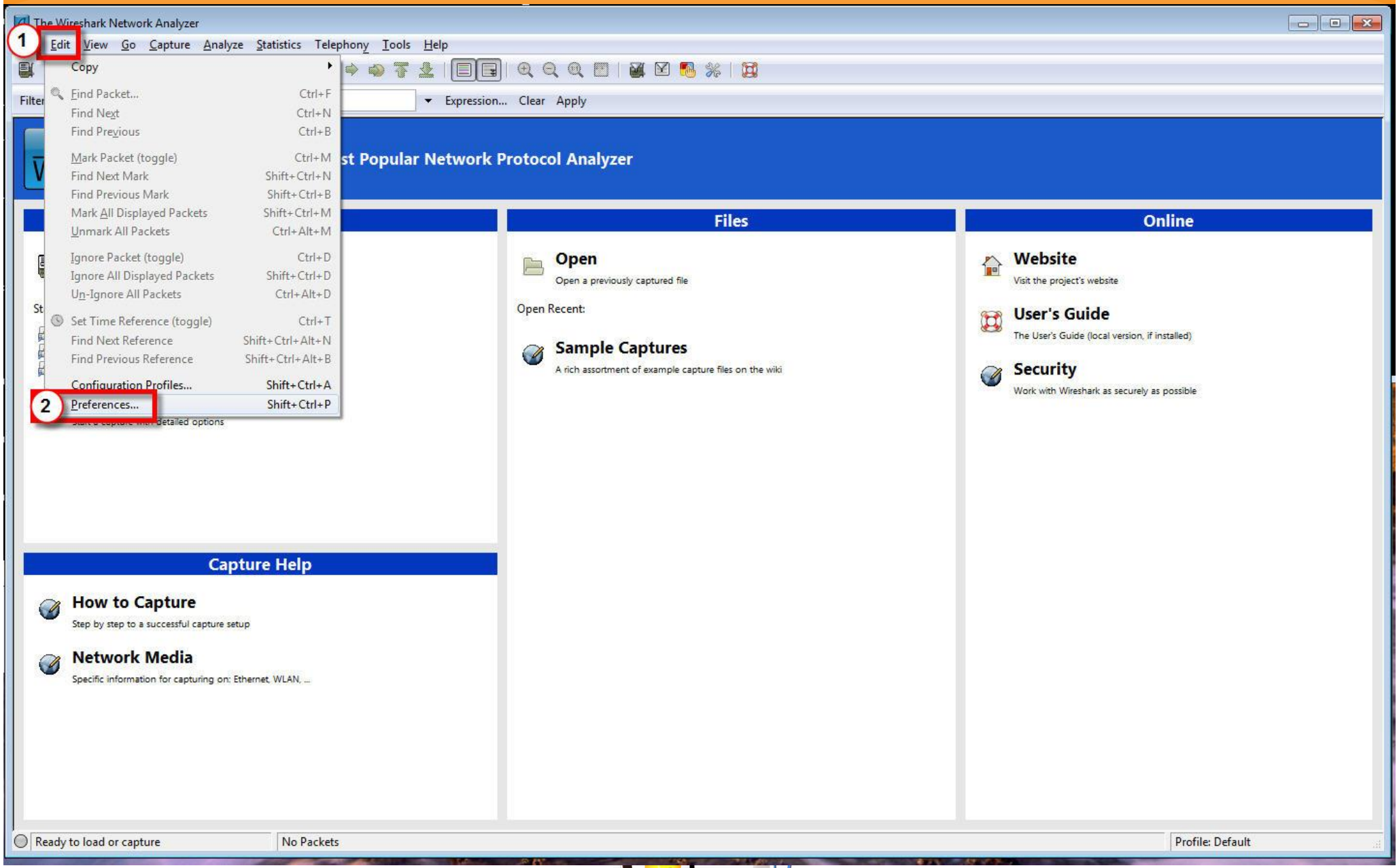
Wireless Tools – 802.11 Packet Capture

- **Example**
  1. The AP-105 has an IP address of 10.8.7.104
  2. There is a laptop with IP address 10.8.7.64 and has Wireshark 1.4.3 running according to the instructions in the following slides.
  3. The syntax specifies 0 for the last value because it is telling the AP to send the frames in Wireshark pcap format.

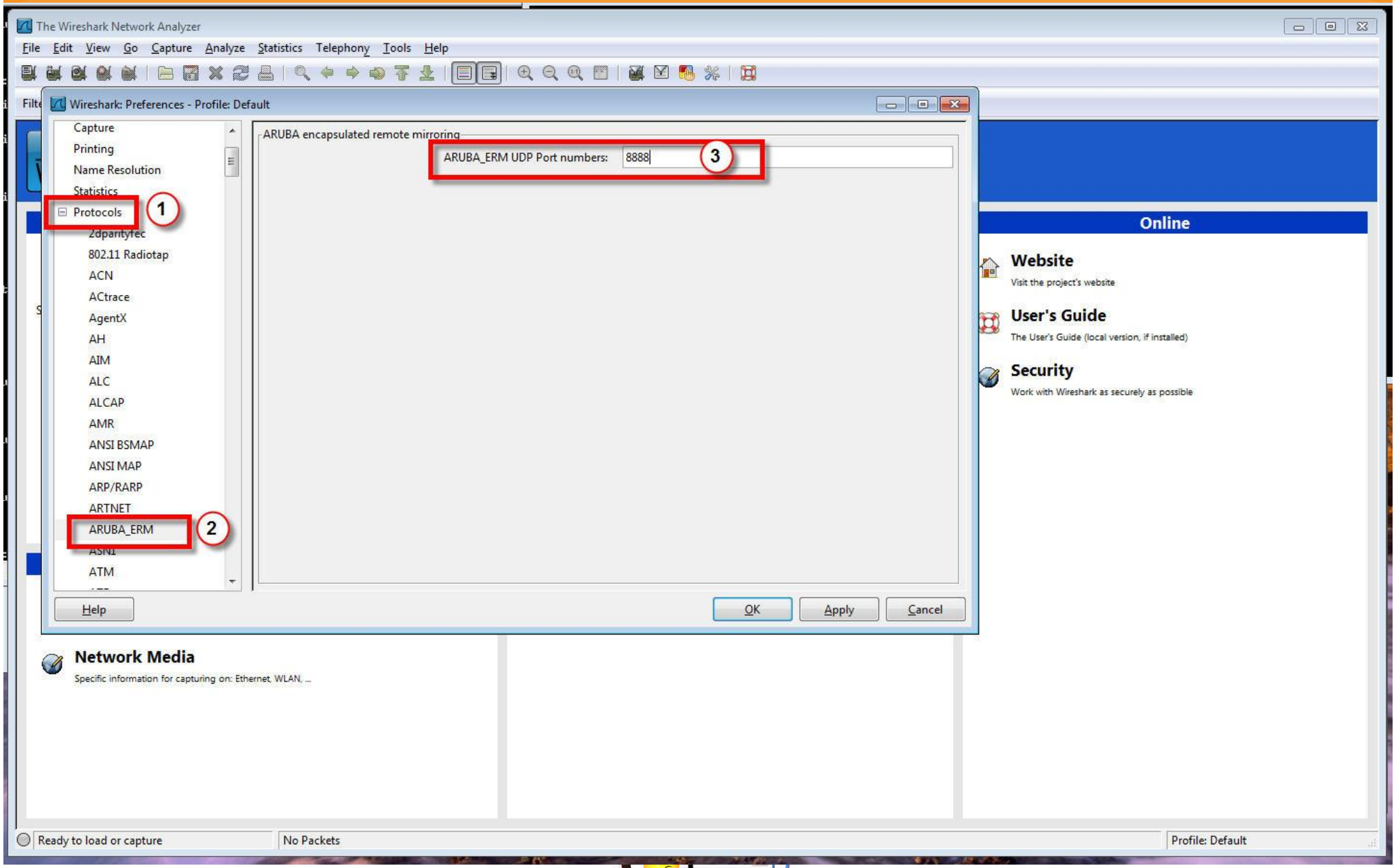
```
(Aruba_Thailand_3600) #pcap raw-start 10.8.7.104 10.8.7.64 8888 0

pcap-id:1

(Aruba_Thailand_3600) #
```

ARUBA networks

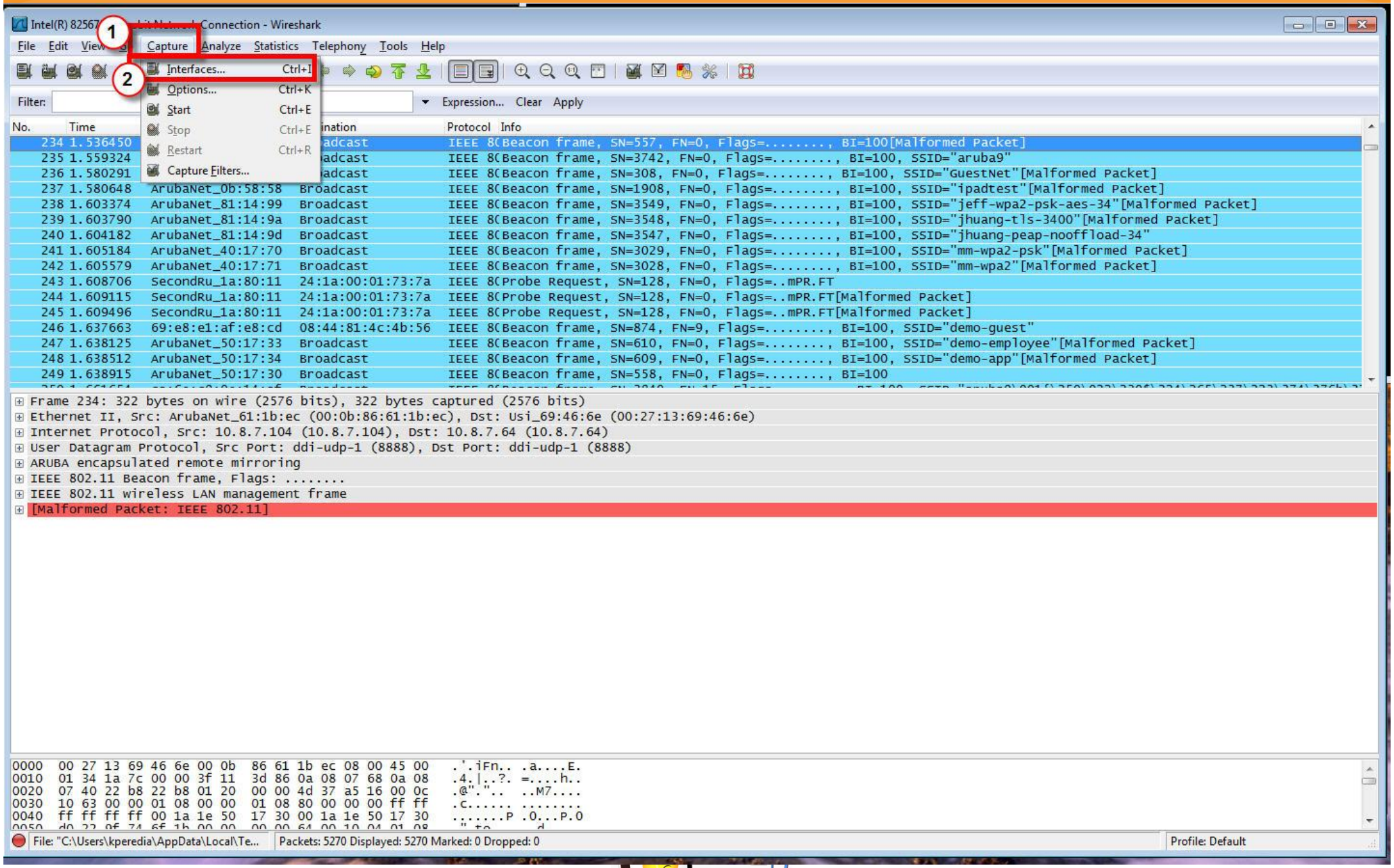
Wireless Tools – 802.11 Packet Capture



Wireless Tools – 802.11 Packet Capture

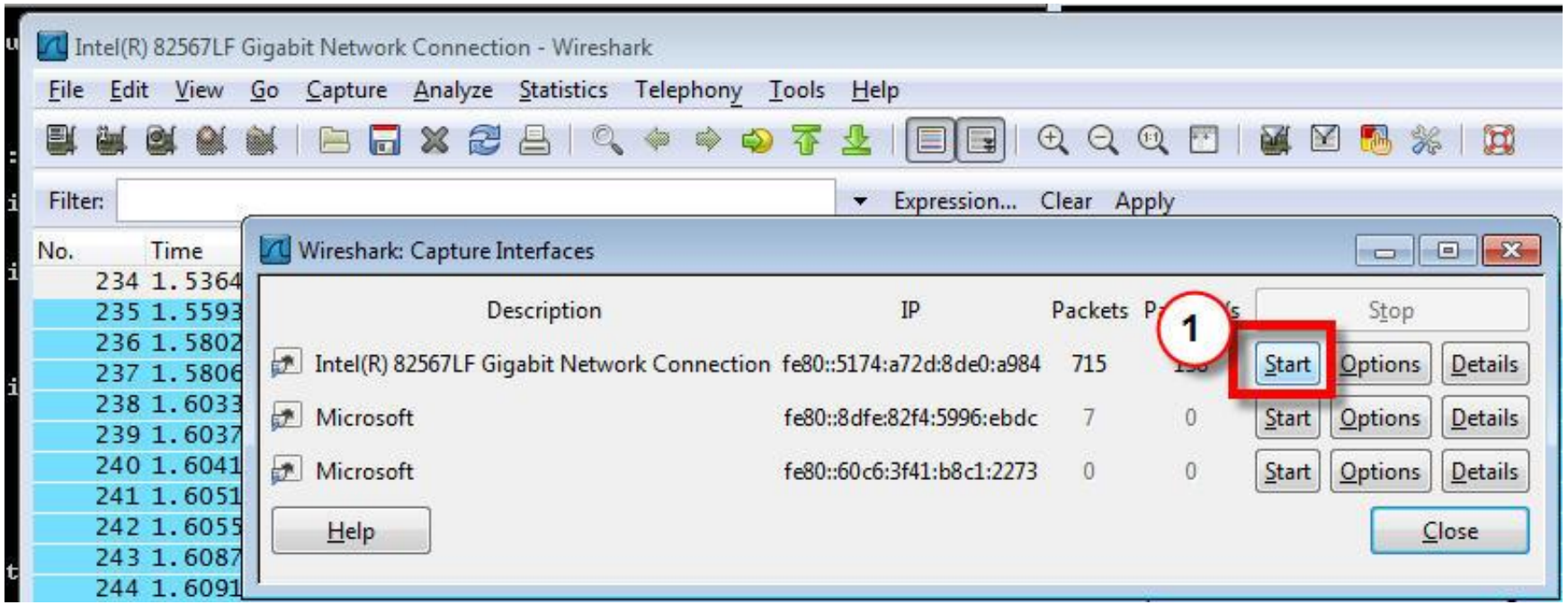


Wireless Tools – 802.11 Packet Capture



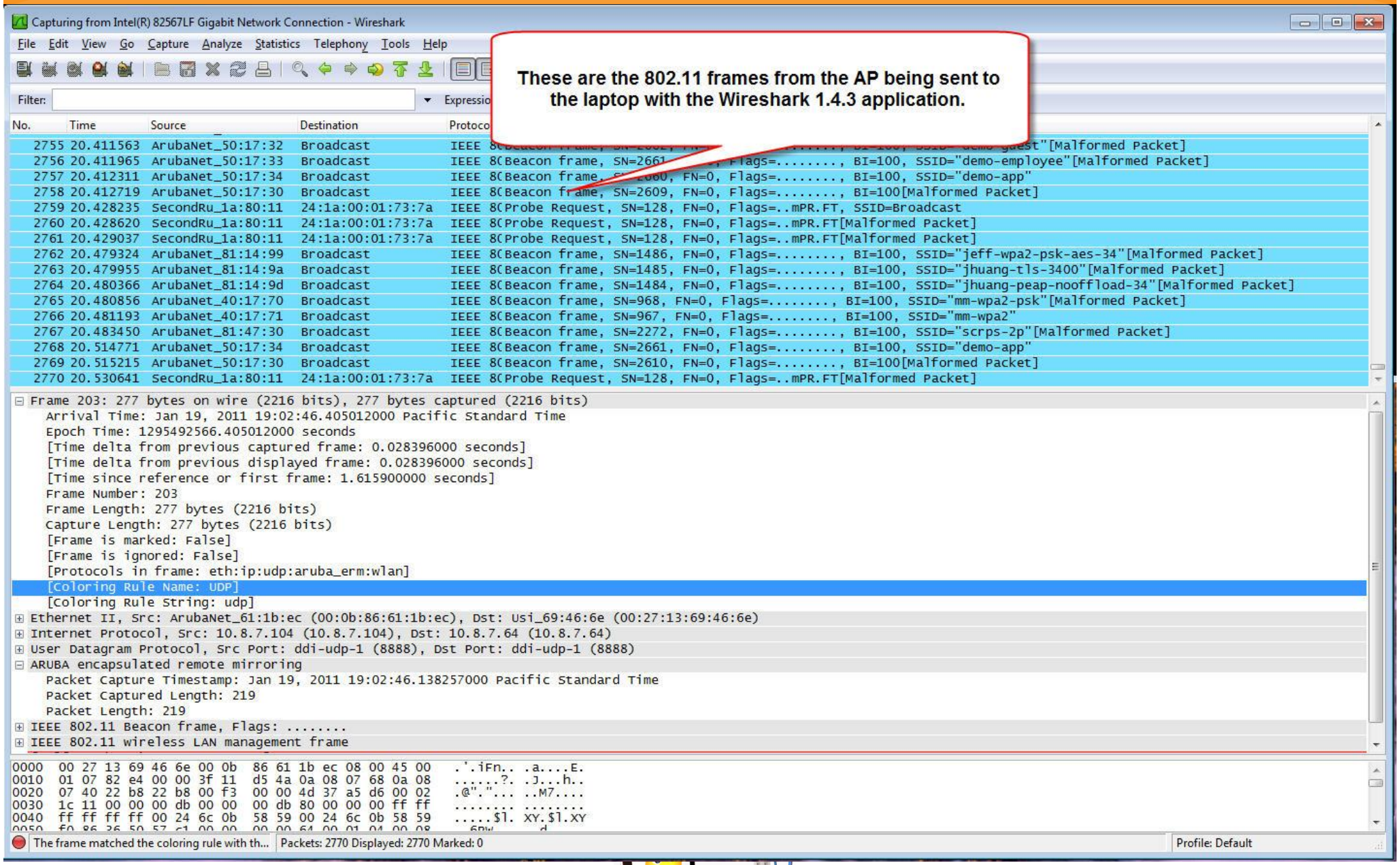
ARUBA networks

Wireless Tools – 802.11 Packet Capture



ARUBA networks

Wireless Tools – 802.11 Packet Capture



ARUBA networks

Wireless Tools – 802.11 Packet Capture

- **To stop the remote packet capture**
  - Find out the BSSID that is being used to sniff use the CLI command "show ap pcap status ip-addr <AP IP address>"

Example:

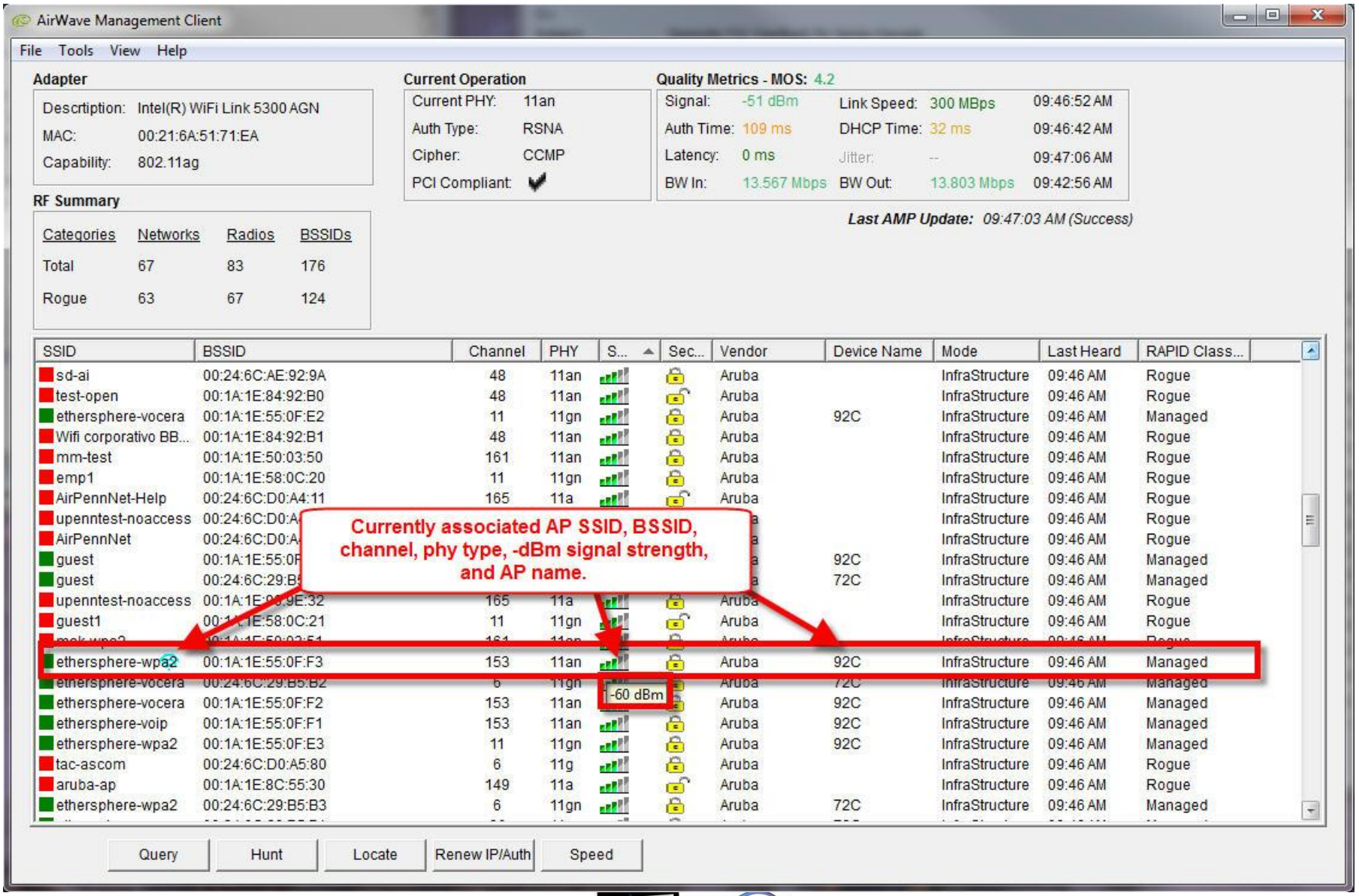
```
(Aruba_Thailand_3600) #show ap pcap status ip-addr 10.8.7.104
Packet Capture Sessions
-----------------------
pcap-id filter type intf channel max-pkts max-pkt-size num-pkts status url target
------- ------ ---- ---- ------- -------- ---------- -------- ------ --- ------
1 raw 00:24:6c:0b:57:b8 157 in-progress 10.8.7.64/8888
(Aruba_Thailand_3600) #
```

  - Stop the remote packet capture by using the CLI command "pcap stop <AP IP address> bssid <intf column value shown above>".

```
(Aruba_Thailand_3600) #pcap stop 10.8.7.104 1 bssid 00:24:6c:0b:57:b8
pcap-id:1
(Aruba_Thailand_3600) #
```

ARUBA networks

Wireless Tools – Airwave Mgmt Client



ARUBA networks

Checking Controller Health

Controller CPU Stats

```
(ethersphere-lms3) #show cpuload

user 1.2%, system 0.9%, idle 97.9%

(ethersphere-lms3) #
```

ARUBA networks

Controller CPU Stats (cont'd)

```
(ethersphere-lms3) #show cpuload current
top2 - 08:02:44 up 28 days, 12:50,  0 users,  load average: 0.01, 0.04, 0.01
Tasks: 180 total,   1 running, 179 sleeping,   0 stopped,   0 zombie
Cpu(s):  0.7%us,  0.4%sy,  0.0%ni, 98.7%id,  0.0%wa,  0.0%hi,  0.2%si,  0.0%st
Mem:   1541896k total,   255388k used,  1286508k free,     7592k buffers
Swap:        0k total,        0k used,        0k free,   107588k cached

  PID USER      PR  NI  VIRT  RES  SHR S %CPU %MEM    TIME+  COMMAND
30222 root      15   0  3860 1056  772 R    7  0.1   0:00.09 top2
 1546 root      16   0  5180  860  624 S    2  0.1 260:20.45 msgHandler
 1639 root      15   0 19220 9372 1608 S    2  0.6   1114:26 wms
    1 root      16   0  5180  628  508 S    0  0.0   0:18.69 init
.....
(ethersphere-lms3) #
```

ARUBA networks

Controller Processes Stats

```
ethersphere-lms3) #show processes sort-by cpu


%CPU S   PID  PPID    VSZ   RSS F  NI START     TIME      EIP CMD
 3.0 S  1748  1498  11068  3000 4   0 Aug05 20:57:10 2b0f5094 /mswitch/bin/snmpd
 2.7 S  1639  1498  19220  9372 4   0 Aug05 18:34:33 2b2ae094 /mswitch/bin/wms -l 5
 1.8 S  1650  1498  19820 10460 4   0 Aug05 12:22:01 2b2e4094 /mswitch/bin/stm
 0.6 S  1649  1498  21868  8344 4   0 Aug05 04:26:04 2b1bb094 /mswitch/bin/auth
 0.6 S  1546  1498   5180   860 0   0 Aug05 04:20:24 2ae66094 /mswitch/bin/msgHandler -g
 0.5 S  1505  1498   7000  1276 4   0 Aug05 03:54:45 2b011094 /mswitch/bin/packet_filter
 0.3 S  1749  1498  11620  4152 4   0 Aug05 02:09:02 2b0f5094 /mswitch/bin/trapd
 0.1 S  1143  1141   5740  1456 4   0 Aug05 00:49:11 2ad23094 /mswitch/bin/syslogd -x -r -n -m 0 -f
     /mswitch/conf/syslog.conf
 0.1 S  1625  1624  72244 18164 5   0 Aug05 00:41:27 2b28d0f8 /mswitch/bin/fpapps
 0.0 S 30183  1758   9028  2288 4   0 08:01 00:00:00 2b046094 sshd: support@pts/0
 0.0 S    19     1      0     0 1  -5 Aug05 00:14:28 00000000 [events/1]
 0.0 S  1548  1498  29132 17244 4   0 Aug05 00:05:34 2b2e4094 /mswitch/bin/cfgm
 0.0 S  1503  1498  28500 17044 4   0 Aug05 00:03:47 2b074f10 /mswitch/bin/fpcli
 0.0 S  1628  1498  11488  1996 0   0 Aug05 00:02:32 2b2a2094 /mswitch/bin/licensemgr
 0.0 S  1627  1498   6060  1404 4   0 Aug05 00:01:31 2aece094 /mswitch/bin/pim
 0.0 S 30198 30183   2176   400 4   0 08:02 00:00:00 2ac16094 -sshwrap
 0.0 S  1696  1498   8916  1944 0   0 Aug05 00:01:11 2b0f4094 /mswitch/bin/mobileip
```

ARUBA networks

Show Datapath Utilization Stats

```
(ethersphere-lms3) #show datapath utilization

Datapath Network Processor Utilization
------+---------+---------+----------+
      | Cpu utilization during past  |
  Cpu |  1 Sec     4 Secs    64 Secs |
------+---------+---------+----------+
    8 |       0% |       0% |        0% |
    9 |       0% |       0% |        0% |
   10 |       0% |       0% |        0% |
   11 |       0% |       0% |        0% |
   12 |       0% |       0% |        0% |
   13 |       0% |       0% |        0% |
   14 |       0% |       0% |        0% |
   15 |       0% |       0% |        0% |
   16 |       0% |       0% |        0% |
   17 |       0% |       0% |        0% |
   18 |       0% |       0% |        0% |
   19 |       0% |       0% |        0% |
   20 |       0% |       0% |        0% |
   21 |       0% |       0% |        0% |
   22 |       0% |       0% |        0% |
   23 |       0% |       0% |        0% |
   24 |       0% |       0% |        0% |
   25 |       0% |       0% |        0% |
   26 |       0% |       0% |        0% |
   27 |       0% |       0% |        0% |
   28 |       0% |       0% |        0% |
   29 |       0% |       0% |        0% |
   30 |       0% |       0% |        0% |
   31 |       0% |       0% |        0% |
```

ARUBA networks

Controller Datapath Frame Stats

```
(ethersphere-lms3) #show datapath frame


Datapath Frame Statistics

-------------------------

Allocated Frames             773

IP Datagrams Fragmented      231003191

IP Fragmentation Failures    0

IP Reassembled Datagrams     64779609

IP Reassembly overlaps       0

IP Reassembly Failures       2994

Invalid IP headers Received 135

BPDUs Received               0

LAPDUs Received              0

Runts Received               0

WIFI Frames Re-Assembled     10062

WIFI Re-Assembly Failures    36

WIFI AMSDU                   1

WIFI AMSDU De-aggregated     0

WIFI AMSDU De-agg Failures   0

xSec Frames Re-Assembled     0

xSec Re-Assembly Failures    0

Station Not Data Ready       165632

Association Throttle         0
```

Controller Datapath Frame Stats

```
(ethersphere-lms3) #show datapath frame
```

	SLOT 0	SLOT 1	SLOT 2	SLOT 3
Rx Frames	0	0	0	1739824041
Rx Failures	0	0	0	0
Rx Underflows	0	0	0	0
Rx Overflows	0	0	0	0
Tx Frames	0	0	0	1854857209
Tx Failures	0	0	0	0
Tx Underflows	0	0	0	0
Tx Overflows	0	0	0	0
Descr Failures	0	0	0	0
Alloc Failures	0	0	0	0
Dot1d Discards	24755	0	0	247769
Dot1Q Discards	0	0	0	321
Denied Frames	134028	0	0	267090
Policed Frames	35336	0	0	251008

ARUBA networks

Controller Datapath Session Stats

```
(ethersphere-lms3) #show datapath session table

Datapath Session Table Entries
------------------------------

Flags: F - fast age, S - src NAT, N - dest NAT
       D - deny, R - redirect, Y - no syn
       H - high prio, P - set prio, T - set ToS
       C - client, M - mirror, V - VOIP
       I - Deep inspect, U - Locally destined
```

Source IP	Destination IP	Prot	SPort	DPort	Cntr	Prio	ToS	Age	Destination	TAge	Flags
10.5.168.14	10.6.6.104	17	2240	49152	0	0	0	0	vlan 166	ff	FHV
					0	0	0	0	vlan 166		FHV
10.5.168.14	10.6.6.104	17	2241	49153	0	0	0	0	sysmsg 107	ff	FRHV
					0	0	0	0	sysmsg 107		FRHV
10.5.168.30	10.6.6.104	17	32773	5060	0	6	56	1	0/0	14	FHPTMCI
					0	6	56	2	0/0		FHPTMCI
10.6.6.104	10.5.168.14	17	49153	2241	0	0	0	0	sysmsg 107	ff	FRHV
					0	0	0	18	sysmsg 107		FRYHV

F – Indicates fastage, Session will be aged out in 15-30 seconds if there is no activity, without the flag it is 30 minutes.
Y – Two handshake incomplete. Same age restrictions as F apply]
C – Client side of the session. Usually the originator side of the traffic.
I – Deep inspect for ALG purpose. Packets get punted to SP most of the times to open up additional ports.
U – Session is destined to me. Rarely used. Ex TFTP sessions from AP for image download.
P- Set the .1p priority on the packet. It is also learnt .1p in most cases. Cisco advocates I believe .1p of 5 or 7 for voice, so you invariably see voice sessions tied with this flag. Other than that they don't have any relation.
H – High priority. Any internal punts between CPU will use high priority queue.
T – Set IP TOS to the shown value.

ARUBA networks