

Exercise 1: Script to list all the Wi-Fi Networks Available in a PCAP File

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I. INTRODUCTION

This is the submission of Exercise 1 of EE5150: Communication Networks. Section II contains an overview of the Python Code used for the extraction of the data from the PCAP file. Section III contains the actual data obtained from the file. The file used is the given PCAP file (*captured.pcap*).

II. PYTHON CODE FOR EXTRACTION

Run the Python code, use the following format in Linux terminal:

```
python3 read_pcap.py <pcap-file>
```

A total of 77 packets were present in the given PCAP file, of which the non-beacon packets can be filtered out using the function `pkt.haslayer(Dot11Elt)`.

All the data obtained is first stored in a list, such that it even has repeated entries for SSID. This list, after all the data is extracted, is further processed to contain only unique entries and average values of RSSI, Noise Levels and SNRs.

SSID is present in the `pkt[Dot11Elt].info` from where it can be obtained by decoding. BSSID was found to be present in as `pkt[Dot11FCS].addr3`. To get channel number, command `pkt[Dot11].channel` is used.

To extract Frequency, RSSI and Noise levels from PCAP, commands used are `pkt.ChannelFrequency`, `pkt.dBm_AntSignal` and `pkt.dBm_AntNoise` respectively.

The Frequency Band information is present in `pkt.ChannelFlags` where the presence of "2GHz" for 2.5GHz band and "5GHz" for 5GHz band was observed. Alternatively, one can use frequency information obtained to deduce the frequency band.

Lastly, SNR in dBm was calculated by subtracting RSSI and Noise levels.

III. DATA EXTRACTED

SSID	BSSID	Channel	Band (GHz)	Frequency (MHz)	RSSI (dBm)	Noise (dBm)	SNR (dBm)
Anand	d8:47:32:3a:e2:cc	2	2.5GHz	2412	-82	-90	8
AndroidAP55DB	3c:57:6c:09:55:db	6	2.5GHz	2437	-43.75	-92	48.25
Nivi	b8:c1:ac:7c:b5:d8	11	2.5GHz	2462	-79.027	-94.243	15.216
OLA_DRIVER_HOTSPOT_t+8jIvyXCO	00:23:b1:8b:08:56	11	2.5GHz	2462	-91	-95	4
RTL8186-default	00:00:00:00:00:00	11	2.5GHz	2462	-91	-95	4
kindpanda2.4	68:ff:7b:aa:a0:87	10	2.5GHz	2457	-90.5	-93	2.5
Ranjani	0c:d2:b5:96:5e:8b	10	2.5GHz	2457	-89	-93	4