WLAN / 802.11

I. Objectives

The objectives of this practical work are:

- Understand complementary mechanisms that increase the efficiency of data exchange in 802.11 networks

II. Duration

This work should last 1h

III. Procedures

This Work will use:

a) Students' personal PC with Wireshark installed
b) A previously captured traffic exchange

IV. Network diagram used:

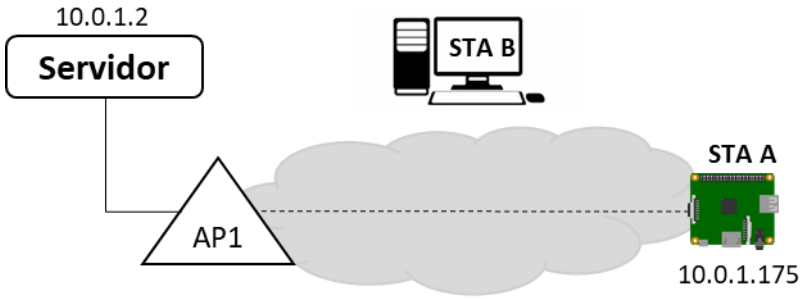


Figure 1: Network diagram used

1. Complementary exercises - WLAN

- RTS/CTS thresholds
- Fragmentation thresholds

In the network represented in the diagram above (Figure 1) the following thresholds were configured in STA A (with *the iwconfig* command) and in the AP:

1. Limit for sending RTS/CTS: 200 bytes
2. Limit for fragmentation: 500 bytes

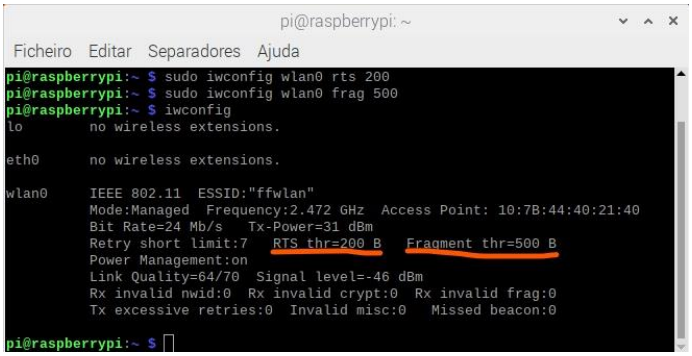
STA A	Cisco AP (Rooms 300 and 301)
	interface Dot11Radio0 ! ssid ComMoveis.33x.2400 ! fragment-threshold 500 rts threshold 200

Table 1: Setting Thresholds

In the represented server, 3 pings were made to STA A with the following result:

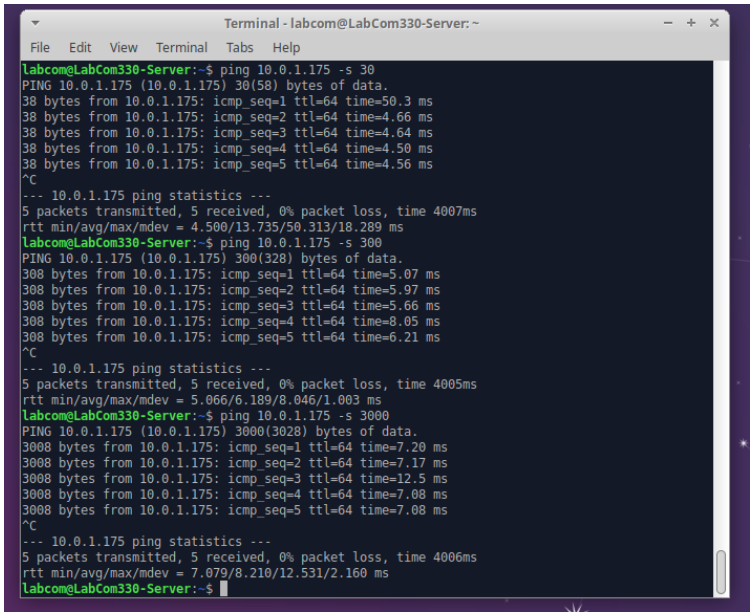


Figure 2: Ping results

1. Download the *"***ping file with rts and frags_ff_1.pcapng***"* with the capture made on Wireshark in execution on STA B (in Monitor *mode*)
2. Analyze it based on the threshold information provided (you should use other display filters in addition to the one suggested below).

   a) Notice the use of RTS/CTS on multiple *pings*; are the AP and STA A behaviors the same?

   b) Note the various fragments and the information contained in each of them. How many of fragmentation are there and where are they performed? For easy analysis, filter only 802.1 frames (*wlan.fc.type == 2 && wlan.fc.subtype == 8*)

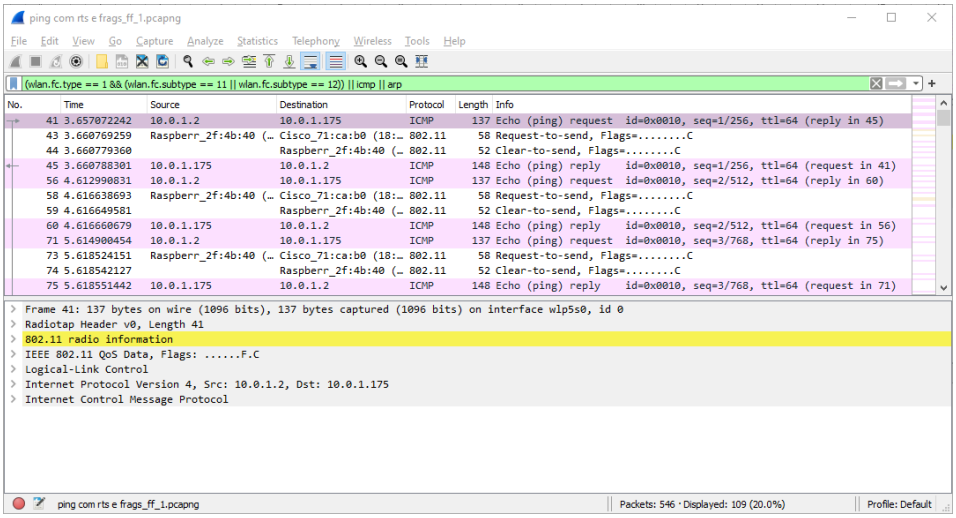


Figure 3: Partial capture of the 1st ping (30 bytes)

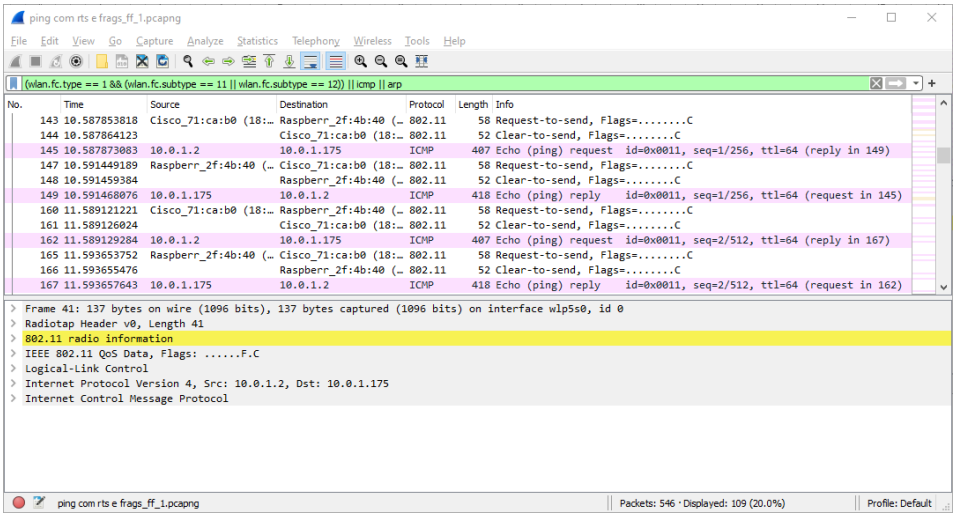


Figure 4: Partial capture of 2nd ping (300 bytes)

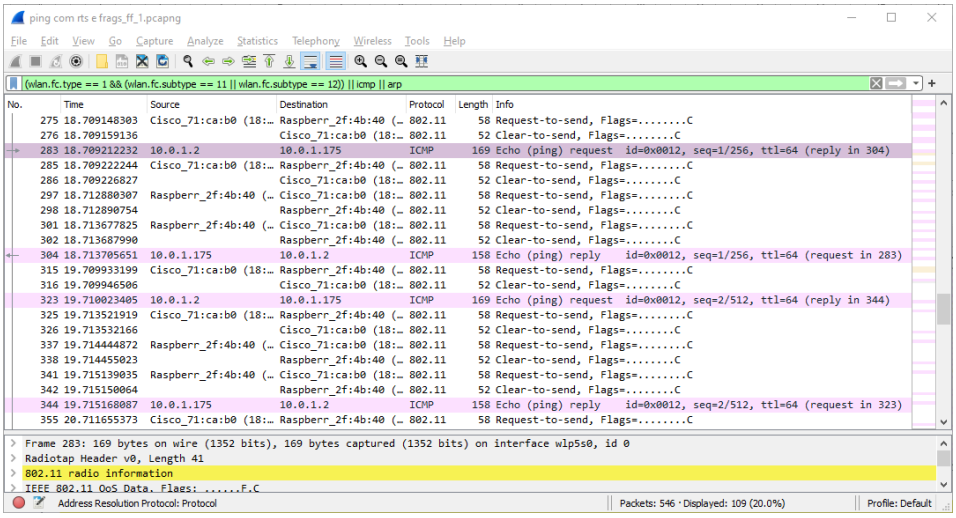


Figure 5: Partial capture of the 3rd ping (3000 bytes)