Lab Assignment for Chapter 15

We have created only one lab assignment for this chapter. However, as we mention later, you need extra piece of software if you want to capture wireless packets. We have also included one lab-report sheet. It is assumed that you have done the lab assignment for Chapter 1, which told you how to install the Wireshark software and how to use it.

15.1   LAB15-1: WIRELESS NETWORK

IEEE project 802.11 is the dominant standard in wireless LANs. In this lab we capture and examine some IEEE 802.11 frames. Unfortunately, Wireshark does not work with radio waves and thus cannot capture wireless traffic. To capture wireless packet, you need to purchase **AirPcap**, a USB-based 802.11 radio designed to work effectively with Wireshark. An external antenna is also included with AirPcap, which increases the listening ability of the tool. Alternatively, you can download a captured wireless packet from many websites. One such website that has many Wireshark captured file is

http://wiki.wireshark.org/SampleCaptures.

Using a wireless laptop equipped with Wireshark and AirPcap, capture some wireless packet. The laptop must have wireless connection to an access point (AP). Depending on the location, you may see many captured packets. The 802.11 standard defines various frame types that stations use for managing and controlling the wireless link. Every frame has a control field that depicts the 802.11 protocol version, frame type, and various other indicators. In addition all frames contain link-layer addresses, a frame sequence number, frame body and frame check sequence (see Figure 15.9 in the textbook).

Part I: Different Wireless Frames and Their Functions

There are many wireless frames in the captured trace. Some of these frames are management frames, some are control frames, and some are data frames.

Questions

Using the captured information, answer the following question in your lab-report sheet.

1. List management frames in the trace.
2. List control frames in the trace
3. List data frames in the trace.
4. Which captured frame is an association frame (use the Internet to learn more about the association frames)?
5. Which captured frame is a beacon frame (use the Internet to learn more about the beacon frames)?
6. Which captured frame is a probe frame (use the Internet to learn more about the probe frames)?
7. Which captured frame is an RTS frame?
8. Which captured frame is a CTS frame?
9. Which captured frame is an ACK frame?

Part II: Beacon Frame

From the packet list pane, select one of the beacon frames.

Questions

Using the captured information, answer the following questions in your lab-report sheet:

1. From the hexdump determine
   a. the hexadecimal value of the FC? Interpret, the significance of different bits of this hexadecimal value.
   b. the duration of this frame.
   c. the number of addresses in this frame. Which entity does each address define?
   d. the hexadecimal value of FCS field?
2. Using the packet detail pane, verify your answers to question 1.

Part III: Acknowledgment Frame

From the packet list pane, select one of the acknowledgement frames.

Questions

Using the captured information, answer the following question in your lab-report sheet:

1. From the hexdump determine
   a. the hexadecimal value of the FC? Interpret, the significance of different bits of this hexadecimal value.
   b. the duration of this frame.
   c. the number of addresses in this frame. Which entity does each address define?
   d. the hexadecimal value of FCS field?
2. Using the packet detail pane, verify your answers to question 1.

Part IV: Probe Frame

From the packet list pane, select one of the probe frames.

Questions

Using the captured information, answer the following questions in your lab-report sheet:

1. From the hexdump determine
   a. the hexadecimal value of the FC? Interpret, the significance of different bits of this hexadecimal value.
   b. the duration of this frame.
   c. the number of addresses in this frame. Which entity does each address define?
   d. the hexadecimal value of FCS field?
2. Using the packet detail pane, verify your answers to question 1.

15.1.1   Documents to Turn in

1. A copy of the Lab15-1 report sheet that contains answered questions.
2. A printout of the supporting captured information.