AGH University of Science and Technology

Faculty of Computer Science, Electronics and Telecommunications

Design Laboratory

Cybersecurity, Reliability and Risk

Topic: Instruction for the encoder of the covert channel using TTL variance.

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1. Requirements

At first, all requirements must be fulfilled:

1. Installed Python 3.8 IDE (preferably PyCharm 2020).
2. Npcap 1.10
3. ScaPy 2.4.4 installed
4. Have the packet capture file(.pcap) created by the encoder.
5. Having source code or project of the decoder.

2. In the IDE

In case of opening a ready PyCharm project step 1 should not be necessary, you can check if that is true, by looking up errors shown by the IDE, if any scapy related errors occur, that means scapy is not attached correctly.

1. In case of source code make sure to attach Scapy to the project, in PyCharm it is done by:
    1. Go to **File** -> **Settings**(Ctl+Alt+S)
    2. On the left side unfold **Project:**
    3. Press on **Python Interpreter**
    4. Press on a cross saying **Install**(Alt+Instert)
    5. A new window will pop up, insert **scapy** into the search field and click **Install Package**
2. Determine your own IP source and destination addresses (lines 24,25), as well as directory path in which the .pcap file with packet flow should be saved and the name of the file (line 32),

```
24  ip_src="192.168.0.67"
25  ip_dst="192.168.0.2"
```

```
32  path="C:/Users/Szymon Mazurek/Desktop/pcap.pcap"
```

3. Run the program. You can use from the top bar **Run->Run ‘main’**(Shift+F10)
4. On the bottom, a sub window will appear with the output of the program. It will ask the user to input the message and press Enter to start transmission. User can input every ascii character except the . sign, which is used as an indicator of the beginning and the end of data transmission.
5. Afterwards, the whole packet flow with encoded message is saved as .pcap file in specified directory.