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Submitted files:
proj1b_code.py
proj1
b_chatgpt.py

*For the ChatGPT code (*proj1b_chatgpt.py)*, I essentially asked ChatGPT to code the entire assignment, and made minor tweaks if necessary to ensure that the code ran and outputted the correct things.*
Link to chat session:
https://chat.openai.com/share/64cf53b1-2462-48fc-82b4-f6f767ef2c68

In the **ass1_1** pcap, the "secrets" are found in three of the HTTP packets.
The first secret is located in the first HTTP packet's request line, where it states "GET /?secret=secret1 HTTP/1.1\r\n". The second secret is in the second HTTP GET request, and "secret" is one of the header fields: "secret: secret2\r\n". The third secret is in the HTTP POST request in the JavaScript Object Notation field "String value: secret3".
The three secrets are outputted in my code in separate lines:
Secret 1: ('GET', '/?secret=secret1', '1.1')
Secret 2: OrderedDict({'host': 'example.com', 'user-agent': 'curl/7.77.0', 'accept': '/*', 'secret': 'secret2'})*
Secret 3: b'{"secret":"secret3"}'

In the **ass1_2** and **ass1_3** pcap files, the client is attempting to send packets to the server but it is returning a "Time-to-live exceeded" error. Looking at the IP header field in most of the packets, the field "Time to live" is set to 1. Therefore, the error is happening because the packets have to pass more than 1 router while on the path to the server, which causes the Time to live to decrease to 0. When this happens, the packet will be dropped by the router and a ICMP error message is returned. There are also three packets that start with Time to live at 0, which means it is dropped if any router is on the path. Each of the packets are failing to reach the server because they have to hop between more routers than the "Time to live" field is set to. The last three packets could be giving errors because it could not find a path to the server or the server does not exist in the network.

Things that were different between the two pcap files:

- ass1_2 had 2 more packets
- Different source and destination IPs
- Ethernet II, Src: CiscoSPV_91:f8:7f (bc:d1:65:91:f8:7f)

#1

ass1_1.pcap

Source IPs:
2601:200:c100:f730:c07c:ff8a:3166:c648
2606:2800:220:1:248:1893:25c8:1946

Destination IPs:
2606:2800:220:1:248:1893:25c8:1946
2601:200:c100:f730:c07c:ff8a:3166:c648

ass1_2.pcap

Source IPs:
192.168.80.223
10.6.102.254
10.5.102.254
10.176.253.172
10.166.72.77
10.166.72.82
10.177.13.84
10.166.112.1
152.195.84.214
152.195.84.139
152.195.84.141
93.184.216.34

Destination IPs:
192.168.80.84

ass1_3.pcap

Source IPs:
10.0.0.1
96.120.14.125
96.110.222.141
68.85.120.246
96.110.45.237
96.110.45.225
96.110.33.10
96.110.33.2
50.242.151.138

152.195.77.129
93.184.216.34

Destination IPs:
10.0.0.252

#2

ass1_1.pcap

1 , 2601:200:c100:f730:c07c:ff8a:3166:c648 , 2606:2800:220:1:248:1893:25c8:1946
2 , 2606:2800:220:1:248:1893:25c8:1946 , 2601:200:c100:f730:c07c:ff8a:3166:c648
3 , 2601:200:c100:f730:c07c:ff8a:3166:c648 , 2606:2800:220:1:248:1893:25c8:1946
4 , 2601:200:c100:f730:c07c:ff8a:3166:c648 , 2606:2800:220:1:248:1893:25c8:1946
5 , 2606:2800:220:1:248:1893:25c8:1946 , 2601:200:c100:f730:c07c:ff8a:3166:c648
6 , 2606:2800:220:1:248:1893:25c8:1946 , 2601:200:c100:f730:c07c:ff8a:3166:c648
7 , 2606:2800:220:1:248:1893:25c8:1946 , 2601:200:c100:f730:c07c:ff8a:3166:c648
8 , 2601:200:c100:f730:c07c:ff8a:3166:c648 , 2606:2800:220:1:248:1893:25c8:1946
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32 , 2606:2800:220:1:248:1893:25c8:1946 , 2601:200:c100:f730:c07c:ff8a:3166:c648
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43 , 2601:200:c100:f730:c07c:ff8a:3166:c648 , 2606:2800:220:1:248:1893:25c8:1946
44 , 2606:2800:220:1:248:1893:25c8:1946 , 2601:200:c100:f730:c07c:ff8a:3166:c648
45 , 2606:2800:220:1:248:1893:25c8:1946 , 2601:200:c100:f730:c07c:ff8a:3166:c648
46 , 2601:200:c100:f730:c07c:ff8a:3166:c648 , 2606:2800:220:1:248:1893:25c8:1946
47 , 2601:200:c100:f730:c07c:ff8a:3166:c648 , 2606:2800:220:1:248:1893:25c8:1946
48 , 2606:2800:220:1:248:1893:25c8:1946 , 2601:200:c100:f730:c07c:ff8a:3166:c648
49 , 2606:2800:220:1:248:1893:25c8:1946 , 2601:200:c100:f730:c07c:ff8a:3166:c648
50 , 2601:200:c100:f730:c07c:ff8a:3166:c648 , 2606:2800:220:1:248:1893:25c8:1946
51 , 2601:200:c100:f730:c07c:ff8a:3166:c648 , 2606:2800:220:1:248:1893:25c8:1946
52 , 2601:200:c100:f730:c07c:ff8a:3166:c648 , 2606:2800:220:1:248:1893:25c8:1946
53 , 2601:200:c100:f730:c07c:ff8a:3166:c648 , 2606:2800:220:1:248:1893:25c8:1946
54 , 2601:200:c100:f730:c07c:ff8a:3166:c648 , 2606:2800:220:1:248:1893:25c8:1946
55 , 2601:200:c100:f730:c07c:ff8a:3166:c648 , 2606:2800:220:1:248:1893:25c8:1946
56 , 2606:2800:220:1:248:1893:25c8:1946 , 2601:200:c100:f730:c07c:ff8a:3166:c648
57 , 2606:2800:220:1:248:1893:25c8:1946 , 2601:200:c100:f730:c07c:ff8a:3166:c648
58 , 2606:2800:220:1:248:1893:25c8:1946 , 2601:200:c100:f730:c07c:ff8a:3166:c648
59 , 2606:2800:220:1:248:1893:25c8:1946 , 2601:200:c100:f730:c07c:ff8a:3166:c648
60 , 2601:200:c100:f730:c07c:ff8a:3166:c648 , 2606:2800:220:1:248:1893:25c8:1946
61 , 2601:200:c100:f730:c07c:ff8a:3166:c648 , 2606:2800:220:1:248:1893:25c8:1946
62 , 2601:200:c100:f730:c07c:ff8a:3166:c648 , 2606:2800:220:1:248:1893:25c8:1946
63 , 2606:2800:220:1:248:1893:25c8:1946 , 2601:200:c100:f730:c07c:ff8a:3166:c648
64 , 2606:2800:220:1:248:1893:25c8:1946 , 2601:200:c100:f730:c07c:ff8a:3166:c648
65 , 2601:200:c100:f730:c07c:ff8a:3166:c648 , 2606:2800:220:1:248:1893:25c8:1946
66 , 2601:200:c100:f730:c07c:ff8a:3166:c648 , 2606:2800:220:1:248:1893:25c8:1946

ass1_2.pcap

1 , 192.168.80.223 , 192.168.80.84
2 , 192.168.80.223 , 192.168.80.84
3 , 192.168.80.223 , 192.168.80.84
4 , 10.6.102.254 , 192.168.80.84

5 , 10.6.102.254 , 192.168.80.84
6 , 10.5.102.254 , 192.168.80.84
7 , 10.176.253.172 , 192.168.80.84
8 , 10.176.253.172 , 192.168.80.84
9 , 10.166.72.77 , 192.168.80.84
10 , 10.166.72.77 , 192.168.80.84
11 , 10.166.72.77 , 192.168.80.84
12 , 10.166.72.82 , 192.168.80.84
13 , 10.166.72.82 , 192.168.80.84
14 , 10.166.72.82 , 192.168.80.84
15 , 10.177.13.84 , 192.168.80.84
16 , 10.177.13.84 , 192.168.80.84
17 , 10.177.13.84 , 192.168.80.84
18 , 10.166.112.1 , 192.168.80.84
19 , 10.166.112.1 , 192.168.80.84
20 , 10.166.112.1 , 192.168.80.84
21 , 152.195.84.214 , 192.168.80.84
22 , 152.195.84.214 , 192.168.80.84
23 , 152.195.84.214 , 192.168.80.84
24 , 152.195.84.139 , 192.168.80.84
25 , 152.195.84.141 , 192.168.80.84
26 , 152.195.84.141 , 192.168.80.84
27 , 93.184.216.34 , 192.168.80.84
28 , 93.184.216.34 , 192.168.80.84
29 , 93.184.216.34 , 192.168.80.84
30 , 93.184.216.34 , 192.168.80.84
31 , 93.184.216.34 , 192.168.80.84
32 , 93.184.216.34 , 192.168.80.84

ass1_3.pcap

1 , 10.0.0.1 , 10.0.0.252
2 , 10.0.0.1 , 10.0.0.252
3 , 10.0.0.1 , 10.0.0.252
4 , 96.120.14.125 , 10.0.0.252
5 , 96.120.14.125 , 10.0.0.252
6 , 96.120.14.125 , 10.0.0.252
7 , 96.110.222.141 , 10.0.0.252
8 , 96.110.222.141 , 10.0.0.252
9 , 96.110.222.141 , 10.0.0.252
10 , 68.85.120.246 , 10.0.0.252
11 , 68.85.120.246 , 10.0.0.252
12 , 68.85.120.246 , 10.0.0.252

13 , 96.110.45.237 , 10.0.0.252
14 , 96.110.45.237 , 10.0.0.252
15 , 96.110.45.225 , 10.0.0.252
16 , 96.110.33.10 , 10.0.0.252
17 , 96.110.33.10 , 10.0.0.252
18 , 96.110.33.2 , 10.0.0.252
19 , 50.242.151.138 , 10.0.0.252
20 , 50.242.151.138 , 10.0.0.252
21 , 50.242.151.138 , 10.0.0.252
22 , 152.195.77.129 , 10.0.0.252
23 , 152.195.77.129 , 10.0.0.252
24 , 152.195.77.129 , 10.0.0.252
25 , 93.184.216.34 , 10.0.0.252
26 , 93.184.216.34 , 10.0.0.252
27 , 93.184.216.34 , 10.0.0.252
28 , 93.184.216.34 , 10.0.0.252
29 , 93.184.216.34 , 10.0.0.252
30 , 93.184.216.34 , 10.0.0.252