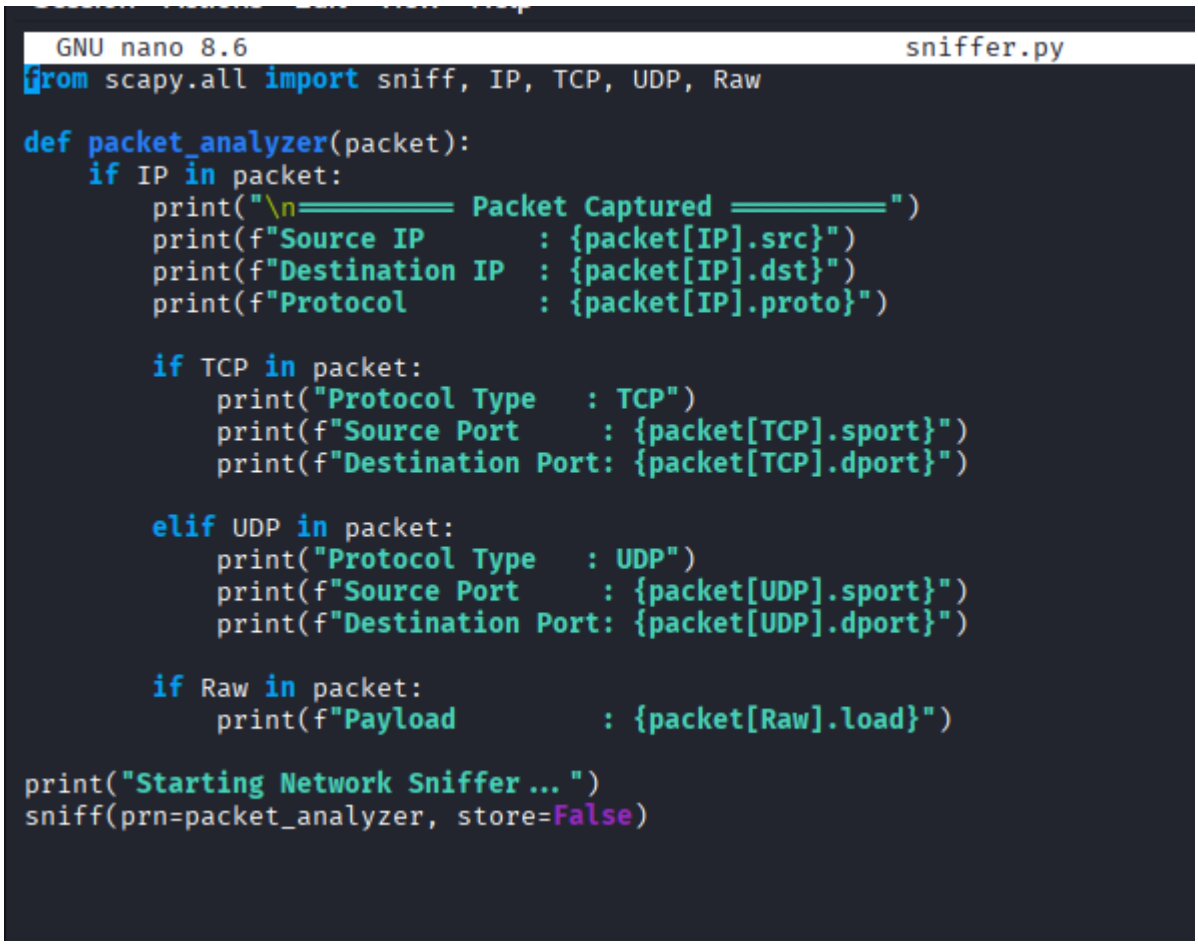
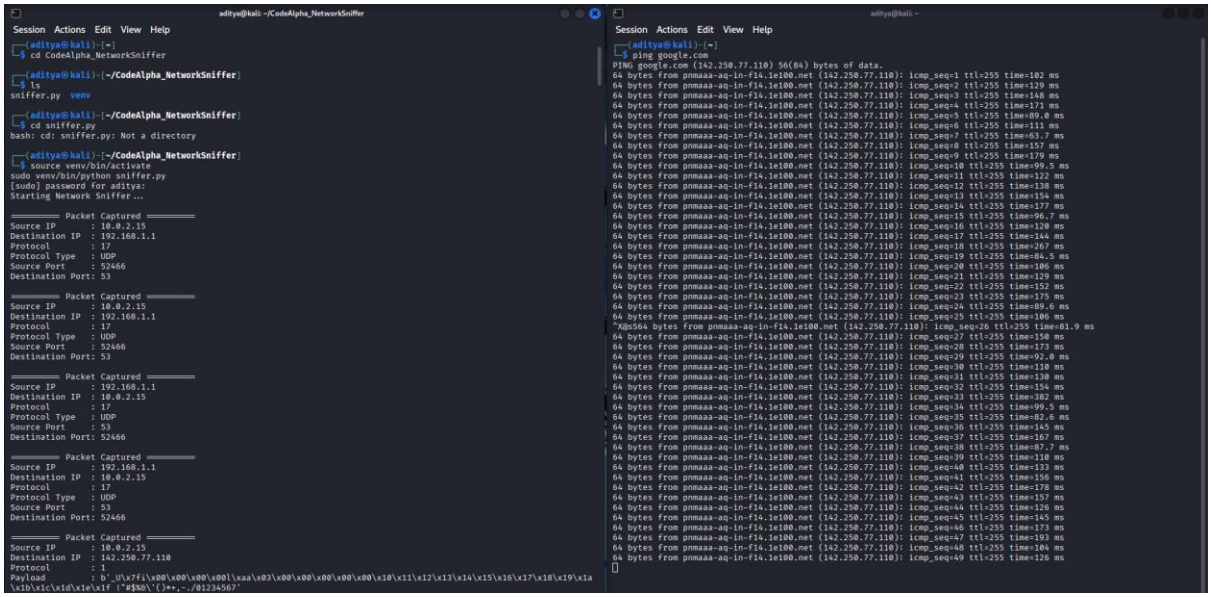
Cyber Security Tasks — CodeAlpha

Task-1 Basic Network sniffer

- Build a Python program to capture network traffic packets.
- Analyze captured packets to understand their structure and content.
- Learn how data flows through the network and the basics of protocols.
- Use libraries like `scapy` or `socket` for packet capturing.
- Display useful information such as source/destination IPs, protocols and payloads.



To develop a Python-based network sniffer using Scapy that captures live network packets and analyzes their source, destination, protocol, and payload to understand how data flows across a network.


aditya@kali: ~/CodeAlpha_NetworkSniffer
Session Actions Edit View Help
┌──(aditya㉿kali)-[~]
└─$ cd CodeAlpha_NetworkSniffer
┌──(aditya㉿kali)-[~/CodeAlpha_NetworkSniffer]
└─$ ls
sniffer.py venv
┌──(aditya㉿kali)-[~/CodeAlpha_NetworkSniffer]
└─$ cd sniffer.py
bash: cd: sniffer.py: Not a directory
┌──(aditya㉿kali)-[~/CodeAlpha_NetworkSniffer]
└─$ source venv/bin/activate
sudo venv/bin/python sniffer.py
[sudo] password for aditya:
Starting Network Sniffer...
========= Packet Captured =========
Source IP : 10.0.2.15
Destination IP : 192.168.1.1
Protocol : 17
Protocol Type : UDP
Source Port : 52466
Destination Port: 53
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Source IP : 192.168.1.1
Destination IP : 10.0.2.15
Protocol : 17
Protocol Type : UDP
Source Port : 53
Destination Port: 52466
========= Packet Captured =========
Source IP : 192.168.1.1
Destination IP : 10.0.2.15
Protocol : 17
Protocol Type : UDP
Source Port : 53
Destination Port: 52466
========= Packet Captured =========
Source IP : 10.0.2.15
Destination IP : 142.250.77.110
Protocol : 1
Payload : b'_U\x7fi\x00\x00\x00\x00l\xaa\x03\x00\x00\x00\x00\x00\x10\x11\x12\x13\x14\x15\x16\x17\x18\x19\x1a
\x1b\x1c\x1d\x1e\x1f !"#$%&\'()*+,-./01234567'
aditya@kali: ~
Session Actions Edit View Help
┌──(aditya㉿kali)-[~]
└─$ ping google.com
PING google.com (142.250.77.110) 56(84) bytes of data.
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=1 ttl=255 time=102 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=2 ttl=255 time=129 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=3 ttl=255 time=148 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=4 ttl=255 time=171 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=5 ttl=255 time=89.0 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=6 ttl=255 time=111 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=7 ttl=255 time=63.7 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=8 ttl=255 time=157 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=9 ttl=255 time=179 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=10 ttl=255 time=99.5 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=11 ttl=255 time=122 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=12 ttl=255 time=138 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=13 ttl=255 time=154 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=14 ttl=255 time=177 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=15 ttl=255 time=96.7 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=16 ttl=255 time=120 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=17 ttl=255 time=144 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=18 ttl=255 time=267 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=19 ttl=255 time=84.5 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=20 ttl=255 time=106 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=21 ttl=255 time=129 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=22 ttl=255 time=152 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=23 ttl=255 time=175 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=24 ttl=255 time=89.6 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=25 ttl=255 time=106 ms
^X@s504 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=26 ttl=255 time=81.9 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=27 ttl=255 time=150 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=28 ttl=255 time=173 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=29 ttl=255 time=92.0 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=30 ttl=255 time=110 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=31 ttl=255 time=130 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=32 ttl=255 time=154 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=33 ttl=255 time=182 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=34 ttl=255 time=99.5 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=35 ttl=255 time=82.6 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=36 ttl=255 time=145 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=37 ttl=255 time=167 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=38 ttl=255 time=87.7 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=39 ttl=255 time=110 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=40 ttl=255 time=133 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=41 ttl=255 time=156 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=42 ttl=255 time=178 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=43 ttl=255 time=157 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=44 ttl=255 time=126 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=45 ttl=255 time=145 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=46 ttl=255 time=173 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=47 ttl=255 time=193 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=48 ttl=255 time=104 ms
64 bytes from pnmaaa-aq-in-f14.1e100.net (142.250.77.110): icmp_seq=49 ttl=255 time=126 ms