Snort Traffic Analysis

> The Snort Traffic Analysis lab provides practical experience in configuring Snort, analyzing network traffic, and creating custom rules for enhanced security.

I successfully downloaded the lab6 file and used the command `xxd ~/Downloads/paper.pdf | head -n 5` to check its headers. The headers are displayed in the provided screenshot.

```
┌──(kali㉿kali)-[~]
└─$ xxd ~/Downloads/lab6.pdf | head -n 5
00000000: 2550 4446 2d31 2e33 0a25 c4e5 f2e5 eba7  %PDF-1.3.%......
00000010: f3a0 d0c4 c60a 3320 3020 6f62 6a0a 3c3c  ......3 0 obj.<<
00000020: 202f 4669 6c74 6572 202f 466c 6174 6544   /Filter /FlateD
00000030: 6563 6f64 6520 2f4c 656e 6774 6820 3537  ecode /Length 57
00000040: 3030 203e 3e0a 7374 7265 616d 0a78 01bd  00 >>.stream.x..
```

To ensure a clean slate, I deleted all the Snort logs using the given command.

```
┌──(kali㉿kali)-[~]
└─$ sudo rm -r /var/log/snort/*
[sudo] password for kali:

┌──(kali㉿kali)-[~]
└─$
```

I then extracted the contents of the with_pdf.zip file into the Downloads directory. The screenshot demonstrates the extraction process.

```
┌──(kali㉿kali)-[~/Downloads]
└─$ unzip with_pdf.zip
Archive:  with_pdf.zip
  inflating: with_pdf.pcap
```

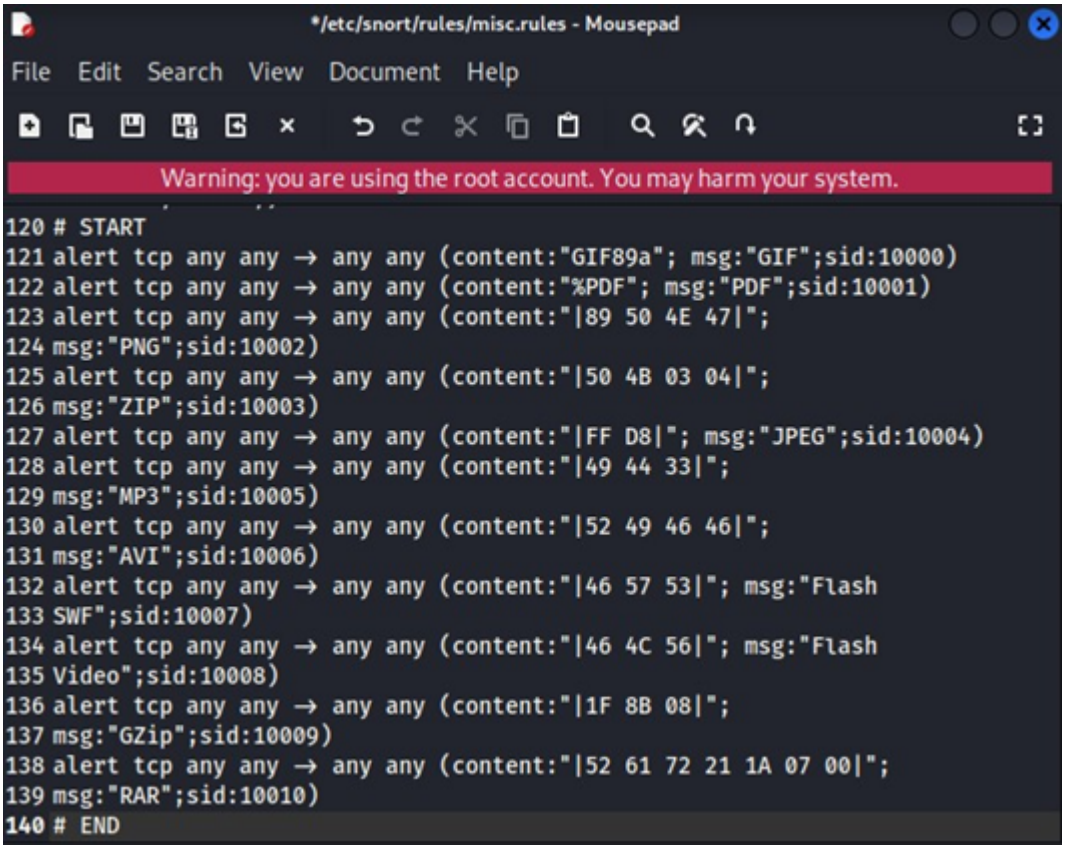
Running Snort with the options `-r` to read the pcap file and `-A full` to save alerts in `/var/log/`, I used the command `sudo snort -c /etc/snort/snort.conf -r with_pdf.pcap -A full`. The screenshot confirms the execution of this command.

```
┌──(kali㉿kali)-[~/Downloads]
└─$ sudo snort -c /etc/snort/snort.conf -r with_pdf.pcap -A full
Running in IDS mode

        --== Initializing Snort ==--
Initializing Output Plugins!
Initializing Preprocessors!
Initializing Plug-ins!
Parsing Rules file "/etc/snort/snort.conf"
```

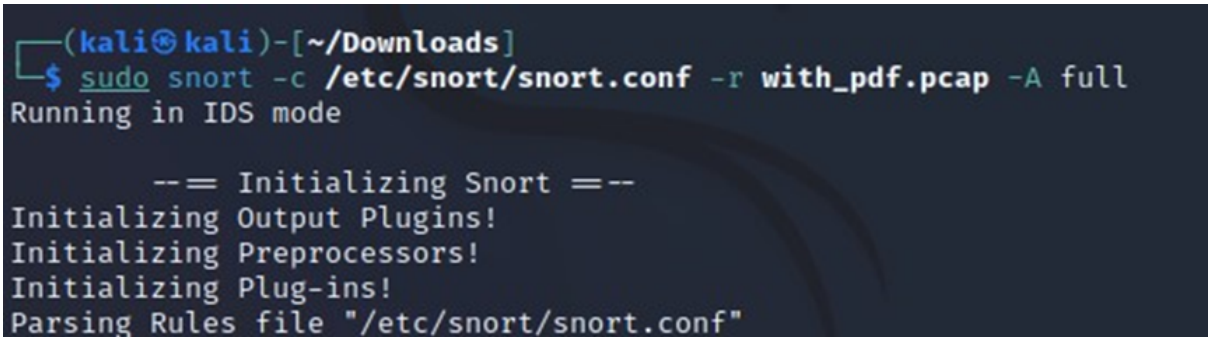
Afterwards, I checked the alert files, but no alerts were found, as indicated in the corresponding screenshot.

```
┌──(kali㉿kali)-[~/Downloads]
└─$ tail /var/log/snort/alert

┌──(kali㉿kali)-[~/Downloads]
└─$
```

Moving on, I proceeded to write the rules in the specified file. The screenshot showcases the rule-writing process.



Running the Snort command again, the alerts were detected this time, as depicted in the screenshot.



```
┌──(kali㉿kali)-[~/Downloads]
└─$ cat /var/log/snort/alert
[**] [1:10009:0] GZip [**]
[Priority: 0]
01/05-14:16:41.637650 173.194.34.88:80 → 192.168.47.171:2574
TCP TTL:128 TOS:0x0 ID:56984 IpLen:20 DgmLen:305
***AP*** Seq: 0x7756221B  Ack: 0x96EC4B61  Win: 0xFAF0  TcpLen: 20

[**] [1:10001:0] PDF [**]
[Priority: 0]
01/05-14:16:42.194095 98.139.134.174:80 → 192.168.47.171:2575
TCP TTL:128 TOS:0x0 ID:56989 IpLen:20 DgmLen:1500
***AP*** Seq: 0x71B91DD6  Ack: 0xB4068CF7  Win: 0xFAF0  TcpLen: 20

[**] [1:10000:0] GIF [**]
[Priority: 0]
01/05-14:16:42.645899 98.139.134.174:80 → 192.168.47.171:2577
TCP TTL:128 TOS:0x0 ID:56999 IpLen:20 DgmLen:301
***AP*** Seq: 0x305B3584  Ack: 0xFBDCF123  Win: 0xFAF0  TcpLen: 20
```

I chose two pcap files from the website malware-traffic-analysis.net and performed the Snort command on each file. Screenshots are provided for both cases, showing the successful detection of alerts based on the previously set rules.

Case 1:

```
┌──(kali㉿kali)-[~/Downloads]
└─$ ls
2022-01-07-traffic-analysis-exercise.pcap   lab6.pdf    with_pdf.pcap
'analysis(1).pcap'                          paper.pdf   with_pdf.zip

┌──(kali㉿kali)-[~/Downloads]
└─$ sudo snort -c /etc/snort/snort.conf -r 2022-01-07-traffic-analysis-exercise.pcap -A full
```

```
┌──(kali㉿kali)-[~/Downloads]
└─$ tail /var/log/snort/alert
01/07-11:16:09.964527 192.168.1.216:49761 → 192.168.1.2:139
TCP TTL:128 TOS:0x0 ID:52736 IpLen:20 DgmLen:136 DF
***AP*** Seq: 0x9F1155AD  Ack: 0xC8D6F3C6  Win: 0x2010  TcpLen: 20

[**] [1:538:15] NETBIOS SMB IPC$ unicode share access [**]
[Classification: Generic Protocol Command Decode] [Priority: 3]
01/07-11:16:39.981840 192.168.1.216:49763 → 192.168.1.2:139
TCP TTL:128 TOS:0x0 ID:52751 IpLen:20 DgmLen:136 DF
***AP*** Seq: 0x15E4B123  Ack: 0xDD225076  Win: 0x2010  TcpLen: 20
```

Case 2:

```
┌──(kali㉿kali)-[~/Downloads]
└─$ ls
2022-01-07-traffic-analysis-exercise.pcap  'analysis(1).pcap'   paper.pdf       with_pdf.zip
2022-02-23-traffic-analysis-exercise.pcap   lab6.pdf            with_pdf.pcap

┌──(kali㉿kali)-[~/Downloads]
└─$ sudo snort -c /etc/snort/snort.conf -r 2022-02-23-traffic-analysis-exercise.pcap -A full
```

```
┌──(kali㉿kali)-[~/Downloads]
└─$ tail /var/log/snort/alert
02/23-14:07:05.139489 172.16.0.149:49852 → 116.254.112.253:25
TCP TTL:128 TOS:0x0 ID:56240 IpLen:20 DgmLen:1500 DF
***A**** Seq: 0xBCFC6E14  Ack: 0xB6EF2208  Win: 0xF95D  TcpLen: 20

[**] [1:10005:0] MP3 [**]
[Priority: 0]
02/23-14:07:05.139489 172.16.0.149:49852 → 116.254.112.253:25
TCP TTL:128 TOS:0x0 ID:56240 IpLen:20 DgmLen:1500 DF
***A**** Seq: 0xBCFC6E14  Ack: 0xB6EF2208  Win: 0xF95D  TcpLen: 20
```

Conclusion

In conclusion, I successfully performed various tasks in the Snort Traffic Analysis lab. This included checking the headers of a PDF file and creating an alert to detect it based on its header signature. By running Snort with the provided pcap files, I detected and logged alerts according to the predefined rules. This hands-on experience with Snort enhanced my understanding of network security, intrusion detection, and the importance of file headers in identifying specific file formats. Overall, the lab provided practical skills in utilizing Snort for traffic analysis and improving network security.