Cybersecurity Internship – Task 4

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Task: 4 – Network Intrusion Detection System (NIDS)

Task Objective:

To set up a Network-based Intrusion Detection System (NIDS) using Snort on a CentOS environment, configure detection rules for suspicious activity such as ICMP packets, monitor network traffic in real-time, and observe alerts generated by Snort.

Tools and Technologies Used:

- Snort 2.9.20 (installed from source)
- CentOS 8 (running in VMware)
- Terminal & Ping utility (for traffic generation)
- Text editors: nano

Implementation Steps:

1. Installed Required Packages and Dependencies for Snort using YUM.

2. Downloaded and compiled DAQ 2.0.7 and Snort 2.9.20 from source.

3. Configured Snort using snort.conf and set the HOME_NET variable according to VM IP range.

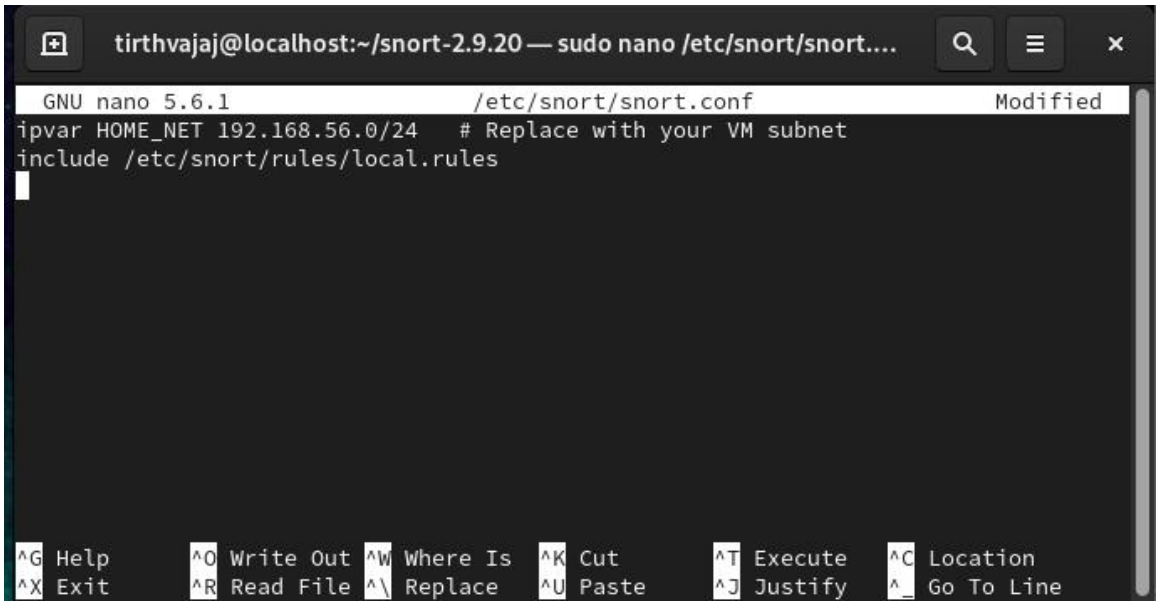
4. Created a custom rule in /etc/snort/rules/local.rules to detect ICMP (ping) traffic:

alert icmp any any -> $HOME_NET any (msg:"ICMP Packet Detected"; sid:1000001; rev:1;)

5. Ran Snort in console mode using the command:

sudo snort -A console -q -c /etc/snort/snort.conf -i ens160

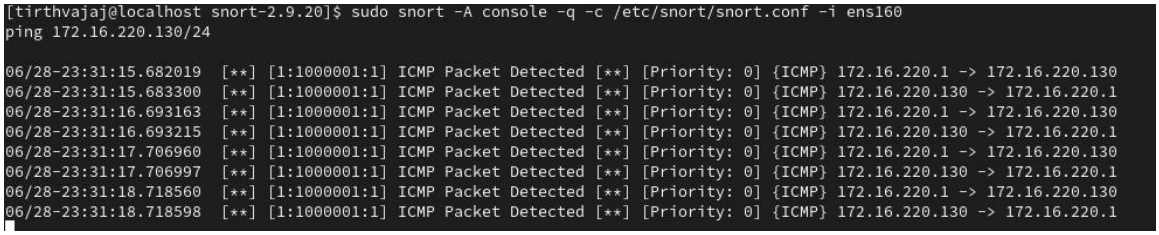
6. Triggered a ping from host system to VM and successfully received real-time alerts.



Observations and Alerts:

Snort successfully detected ICMP traffic. Each ping generated an alert message in the terminal such as:

[**] [1:1000001:1] ICMP Packet Detected [**]



Response Mechanism:

The Snort engine responded by logging the ICMP activity with timestamp and source-destination IPs, fulfilling real-time alerting functionality.

Visualization (Optional):

As per task guidelines, visualization was optional. For this task, console-based alerts were used instead of graphical dashboards.

Conclusion:

The objective of setting up a working NIDS using Snort was successfully achieved. By writing custom detection rules, capturing live network traffic, and responding with console-based alerts, the system was tested thoroughly. This task enhanced practical knowledge in intrusion detection and network monitoring, and served as a foundation for deeper security implementation.