Task 6

Proof of Concept (PoC) Report

Task 6: Log Analysis & Intrusion Detection

1. Executive Summary

This PoC demonstrates the importance of log analysis and intrusion detection in identifying and mitigating brute-force attacks and unauthorized access attempts. The task involves enabling system logging, simulating failed SSH login attempts, analyzing logs to detect brute-force attempts, and implementing mitigation measures using fail2ban and log monitoring tools.

2. Objectives

Setup: Enable system logging and simulate multiple failed SSH login attempts.

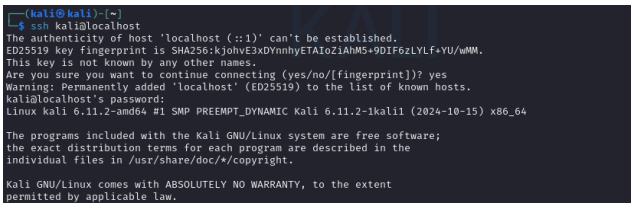
Exploit: Analyze logs to identify brute-force attempts and unauthorized access.

Mitigation: Implement fail2ban to block repeated failed attempts and set up log monitoring automation.

3.Setup

3.1 Enable System Logging
System logging was enabled using journalctl and rsyslog to monitor authentication attempts.

Commands Used:



1. Exploitation

4.1 Analyze Logs for Failed Attempts

The logs were analyzed to identify failed SSH login attempts and potential brute-force attacks.

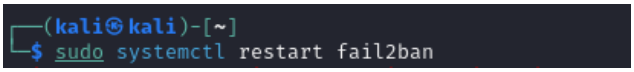
Commands Used:

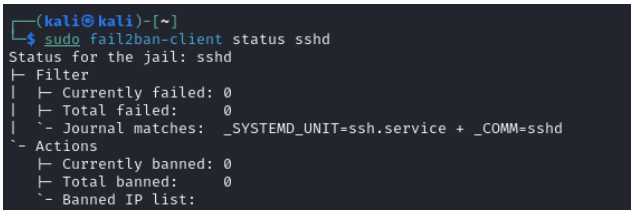
5. Mitigation

5.1 Implement fail2ban

fail2ban was configured to block IP addresses with repeated failed login attempts.

Commands Used:






```
sudo nano /etc/fail2ban/jail.local
```


```
sudo nano /etc/fail2ban/jail.local
```

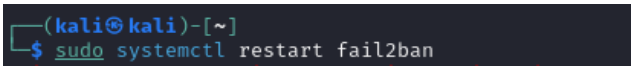

Configuration:

```
[sshd]
enabled = true
maxretry = 3
```

5.2 Restart fail2ban

fail2ban was restarted to apply the new configuration.

Commands Used:



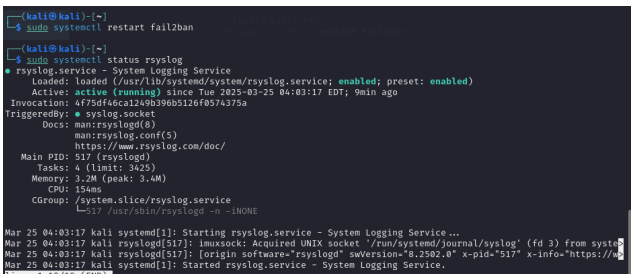
sudo systemctl restart fail2bah

5.3 Set Up Log Monitoring Automation

logwatch was configured to send detailed log reports via email.

Commands Used:

sudo logwatch --detail high --mailto Praveenraj2k05@gmail.com --range today



6. Conclusion

This PoC successfully demonstrated how log analysis can be used to detect brute-force attacks and unauthorized access attempts. By implementing fail2ban and setting up log monitoring automation, the system was secured against repeated failed login attempts.

7. Recommendations

- Regularly review logs for suspicious activity.
- Use tools like fail2ban to automatically block malicious IP addresses.
- Set up automated log monitoring and reporting using logwatch or similar tools.